A STUDY ON THE DIFFERENCE BETWEEN RISK FACTORS OF ANTERIOR AND POSTERIOR CIRCULATION STROKE IN ADULTS

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TAMILNADU

BONAFIDE CERTIFICATE

This is to certify that the dissertation entitled "**A STUDY ON THE DIFFERENCE BETWEEN RISK FACTORS OF ANTERIOR AND POSTERIOR CIRCULATION STROKE IN ADULTS"** submitted by **Dr.M.ARAVINDH** is a bonafide record work done by him, under my direct guidance and supervision, submitted to the Tamil Nadu Dr.M.G.R. Medical University in partial fulfilment of University Regulation for D.M, Branch I- Neurology from 2010-2013.

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DECLARATION

I, Dr.M.ARAVINDH solemnly declare that the dissertation titled **"A STUDY ON THE DIFFERENCE BETWEEN RISK FACTORS OF ANTERIOR AND POSTERIOR CIRCULATION STROKE IN ADULTS"** has been prepared by me. I also declare that this bonafide work or part of the work was not submitted by me or any one for any degree, diploma to any other university board either in India or abroad.

This is submitted to The Tamilnadu Dr.M.G.R. Medical University, Chennai towards partial fulfilment of rules and regulation for the award of D.M. degree Branch –I (Neurology) to be held in August 2013.

Place: Madurai.

Date: **Dr.M.ARAVINDH**

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CONTENTS

INTRODUCTION

INTRODUCTION

In adult life, stroke rank first amongst the diseases of the nervous system. Anterior circulation stroke is the commonest stroke type, whereas stroke occurring in posterior circulation forms only 20%.

The internal carotids systems and their branches form the anterior circulation of the brain. The majority of both cerebral hemispheres are supplied by both carotids except the medial part of the temporal lobes, and occipital lobes which are supplied by the posterior cerebral arteries.

Two vertebral arteries, one basilar artery and two posterior cerebral arteries and their branches form the posterior circulation of brain vascular supply. The area of brain supplied by the posterior circulation includes medial temporal lobe, brainstem, cerebellum, occipital lobes and thalamus.

The stroke has many risk factors. Identifying these risk factors helps in stroke prevention. Risk factors of stroke are categorized into modifiable and non-modifiable.

Non-modifiable stroke risk factors include

Age >65 years,

Male gender,

Race,

Hereditary causes.

Modifiable stroke risk factors include

Cigarette smoking,

Diabetes mellitus

Hypertension,

Dyslipidemia,

It is essential to know these modifiable risk factors so as to develop the primary and secondary preventive plans.

The classification into anterior circulation and posterior circulation is needed since the anterior circulation strokes are mostly ischemic stroke, while stroke occurring in the posterior circulation are the most severe types. Both strokes occurring in anterior and posterior circulation have different natural histories, different pathogenic mechanisms, and risk factor profiles

In this study, I study the differences between anterior circulation stroke and posterior circulation stroke concerning their risk factors.

REVIEW OF LITERATURE

REVIEW OF LITERATURE

In India,Stroke is a major health problem. Stroke burden has been increasing in India when compared with developed countries. In India, 80 % of all strokes are ischemic strokes and intracranial atherosclerosis tends to be more common in Indian population but the global incidence of stroke is unknown.

Stroke occur in any age group from infant to adults but its incidence rises exponentially with increasing age, particularly after the age of 55 years. In peoples older than 65 years, 75% of all strokes occur, and remaining 25% of strokes occur in peoples younger than 65 years.

Stroke tend to more likely to involve men at all ages but since more strokes occur in older age group and women have a longer life span and loss of protective role of oestrogen, overall more strokes occur in females.However, stroke deaths were more common in woman due to above

said factors. This disparity will become more as longevity of elderly population increasing.

Males have higher risk of stroke than females. The stroke incidence in white males is 62.8 per 100,000, while women stroke incidence is 59 per 100,000.

Stroke risk is highest in African Americans (4 fold higher than whites) since, in the black population stroke risk factors such as diabetes and hypertension had higher prevalence. Asians had higher stroke risk than whites' population.

Hispanics have an overall reduced incidence of stroke than whites and blacks, but more incidences of lacunar strokes and strokes occurring in relatively younger age groups.

Stroke Risk Factors

Stroke has many risk factors. Identification of these risk factors helps in planning stroke preventive stratergies.

Stroke Risk factors are classified into

Modifiable stroke risk factors.

Non-modifiable risk factors of stroke.

A).Non-modifiable Risk Factors of Stroke

1. Gender.

In males stroke more common than females. Its incidence is 20% more in over 65 years, 30% more in less than 65 years when compared to females. Stroke death is greater in female, even though males have greater incidence due to greater prevalence of stroke and female have lengthier life duration.

2. Age.

Age is the significant non modifiable stroke risk. The stroke usually occurs more than 65 years. Only less than 25% of stroke occurs in less than 65 years of age. In the younger age group, asphyxiated new-born infants develop stroke, Valvular heart disease in younger age group tend to develop mostly embolic strokes, and Drug abusers mostly develop both embolic and haemorrhagic strokes. After the age of 55 years he stroke incidence increases twice for each decade,

As age advances, stroke incidence increases.so effective preventive measures are needed to reduce its incidence.

3. Heredity factor.

The heredity is important risk factors for stroke. The stroke risk of is higher in positive family history of stroke. Genetic risk factors should be suspected when heart disease or stroke occur in younger age group (<60 years).

4. Race.

African-Americans have 2.5 times higher stroke incidence and mortality rates than whites. In more than 65 years, stroke death rates were lower in Americans when compared to whites due to variable prevalence of modifiable risk factors like high blood pressure, diabetes and obesity in these populations.

5. Family history

If family history is positive for stroke, higher risk of stroke occurrence in other family members, if a family member had

a coronary artery disease at young age, then risk of stroke increases in other family members.Previous stroke or heart attack in a person put him at high risk for developing a second stroke.

6. Geography

Eastern Europe and Western Europe have higher prevalence than Asia.

II. Modifiable Stroke Risk Factors

1. Hypertension.

Hypertension is the significant modifiable stroke risk factors.Normal range of blood pressure is 120/80 mmHg or less. The upper limit of normal pressure is 140/90 or less and 130/80 or less for high risk group. Hypertension is significantly favoured for development of ischemic stroke. Hypertension increases the stroke risk by 35 to 50%. The stroke risk increases in proportion to rise in blood pressure. Stroke risk reduces by 40%, by just decrease the

systolic blood pressure of 10 mmHg and diastolicblood pressure of and 5 mmHg. Hypertension increases the stroke risk by 7 fold when compared to normal population. The greater hypertension prevalence and the presence of effective treatment make an ideal target for therapy and prevention of stroke.

Lowering blood pressure effectively prevents strokes. So Treatment is essential for secondary prevention of stroke. antihypertensive treatment reduce the blood pressure in isolated systolic hypertension but did not show large differences between drugs in stroke prevention and hence other factors should be considered in protection against other cardiovascular disease forms.

2. Diabetes mellitus.

Diabetes mellitus is another important risk factor for stroke.Risk of stroke increases by 2 to 3%.Blood sugar levels more than 150 mg/dl increases the stroke risk by about 2 times. Diabetes accelerates the atherosclerosis and

microangiopathic vascular disease resulted in both small-vessel lacunar infarcts and large-vessel thrombotic strokes.Diabetes mellitus increases damage to small blood vessels and thereby especiallyincreases stroke risk.

The value of HbA1c is 6% or less in normal population. For strict glycaemic control in diabetes a fasting glucose to less than 80to 120 mg/dl andHbA1c is less than 6.5%.

Strict glycaemic control reduces the complications likeretinopathy and nephropathy, but this help is somewhat less with reduction of macrovascular complications like stroke.

3. Dyslipidemia.

Hypercholesterolemia increases atherosclerosis and thereby increases the stroke risk. Reduced high density lipoprotein levels, elevated total cholesterol and low density lipoprotein (LDL) levels increases the risk of atherosclerosis effects. Hypercholesterolemia increases the

ischemic stroke risk. So, lowering the cholesterol levels effectively decrease the stroke risk. During treatment Low density lipoprotein levels to be kept less than 100 mg/dl or in complicated cases less than 70 mg/dl.

Hypolipidemic drugs like statins reduce stroke risk by about 15%. Studies show that other lipid-lowering drugs did not show a stroke risk reduction, so statins might reduce the stroke risk reduction by mechanisms other than their lipid-lowering actions.

4. Cigarette smoking.

Cigarette smoking is a significant leading reason of death in relatively younger age in the country. It increases the stroke risk, and the risk is greater for females. The one day smoking number is an important risk factor for stroke regardless of the starting age of smoking. Smokingcessation reduces the stroke risk to that of non-smokers within 2-5 years.

Smoking increasing blood pressure and reduces blood oxygenation and thereby increases risk of stroke or further strokes.

Tobacco smoke contains more than 4,000 toxic chemicals which are absorbed into the bloodstream. Some of them damage blood vessel walls; increase the atherosclerosis (narrowing and hardening of the arteries). Smoking increasesthe stickiness of the blood and increases the blood clot formation in both arteries of brain and heart resulting in increased incidence of stroke.

5. Cardiac disease.

Stroke risk increases by three fold by Coronary artery disease, the stroke risk increases by 5 fold byatrial fibrillation, the stroke risk increases by 20 fold by Atrial fibrillation with Valvular heart disease states, the stroke risk increases two fold by Mitral annular calcification. But there is no increased stroke risk with uncomplicated mitral valve prolapse. Antithrombotic therapy reduces the stroke risk in

atrial fibrillationpatients. Studies shows that with optimal levels of anticoagulation, stoke risk is lowest in atrial fibrillation patients.

Patients with atrial fibrillation have a risk of stroke by 5% a year, and risk is higher in patients with valvular atrial fibrillation. Depending on the stroke risk and etiology, either anticoagulation or antiplatelet such as warfarin or aspirin is indicated for stroke prevention.

6. Hypercoaguable states.

Hypercoaguable statesincrease the stroke risk. Blood transfusion in sickle cell children reduces the stroke incidence in these high risk children.

7. Alcohol

Alcohol predispose to both ischemic and haemorrhagic stroke. Alcohol acts through multiple mechanisms like via

Atrial fibrillation,

Hypertension,

Clotting disturbances,

Rebound thrombocytosis,

Platelet aggregation.

Excessive alcohol intake increases the stroke risk. Restricting the alcohol intake reduces the stroke risk.

8. Obesity

Obesity and sedentary life style increases the stroke risk factors. The risk is greater when waist circumference more than 35 inches for female and more than 40 inches in male.

9. Drug abuse

Drug abuse another potential modifiable stroke risk factor.The stroke most commonly associated with

Oral contraceptive use,

And Cocaine,

10. Physical inactivity.

11. Diet

Consumption of red meat and other unhealthy diet patterns increases the stroke risk.

AIMS AND OBJECTIVES

AIMS AND OBJECTIVES

1. To study the risk factor prevalence in anterior circulation stroke in adults.
2. To study the risk factor prevalence in posterior circulation stroke in adults.
3. To study the risk factor prevalence difference in gender among posterior circulation stroke and anterior circulation stroke in adults.
4. To study risk factor profile difference between anterior and posterior circulation stroke in adults.

MATERIALS AND METHODS

MATERIALS AND METHODS

The study includes patients admitted in neuromedicine and medical wards and referral cases to Neurology out-patients in Government Rajaji Hospital, Madurai. Patient diagnosed to have ischemic stroke in adults more than 40 years are included in this study. This is a prospective study.

METHODOLOGY:

In this study, data will be obtained from patients who are diagnosed with stroke and are followed up in stroke clinics. Patients can only participate in this study after signing and dating the inform consent. Patient’s demographic characteristics, stroke risk factors profiles, stroke frequencies, and Information of neuroimaging features and their relationships with strokes are also obtained.

Inclusion criteria:

(Based on National Institute of Health criteria)

- Age greater than 40 years.
- Agreed to participate in the study and sign the consent form.
- Hypertension > 140/90 mm Hg.
- Fasting blood sugar more than 140 mg/dl in atleast 2 occasions.
- Total cholesterol more than 240 mg/dl.
- LDL cholesterol more than 130 mg/dl.

Exclusion criteria:

- Patient's refusal to participate in the study.
- Patients with haematological malignancies and bleeding diasthesis.
- Patients with cardiac disease and atrial fibrillation.

Symptoms, clinical details, clinical examination findings and neuroimaging findings were entered in Proforma.

Outcome of risk factor profiles between anterior and posterior circulation ischemic stroke were assessed.

RESULTS

RESULTS

Table 1

Age wise distribution of anterior circulation stroke

Sl.No	Age	No of cases
1	40-50	16
2	51-60	39
3	61-70	52
4	71-80	11
5	81-90	2

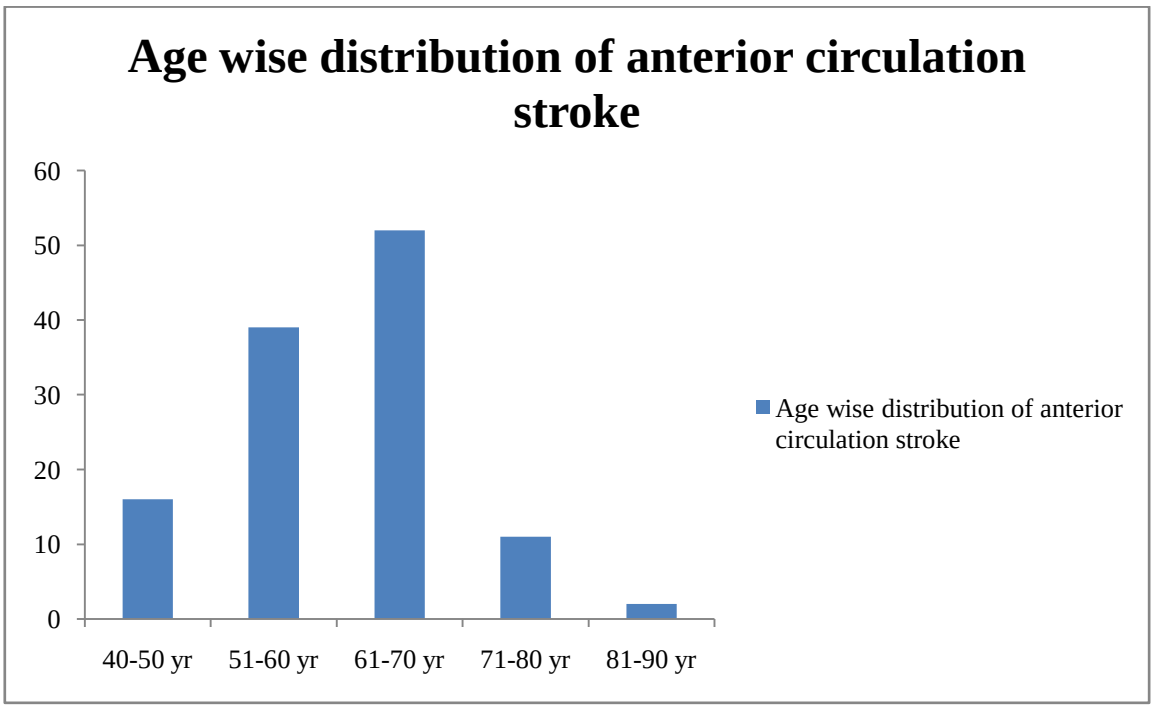
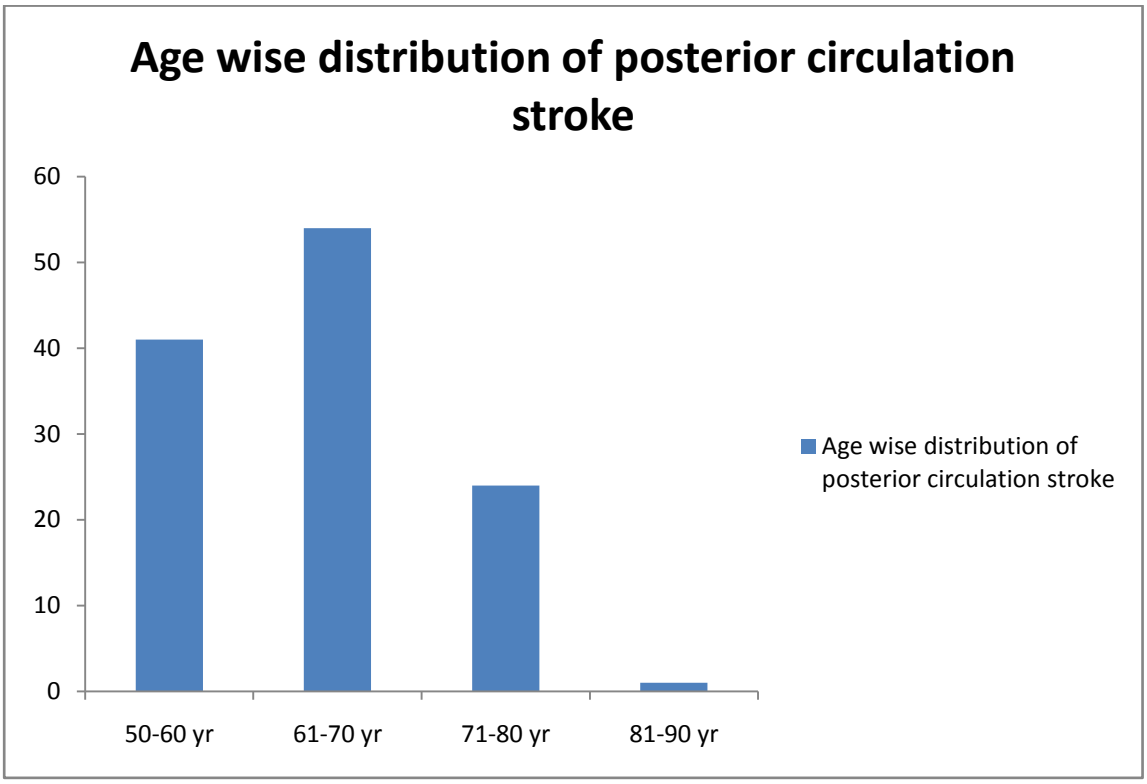


Table 2

Age wise distribution of posterior circulation stroke

Sl.No	Age (years)	No of cases
1	51-60	41
2	61-70	54
3	71-80	24
4	81-90	1



Age wise comparison of anterior circulation stroke and posterior circulation stroke

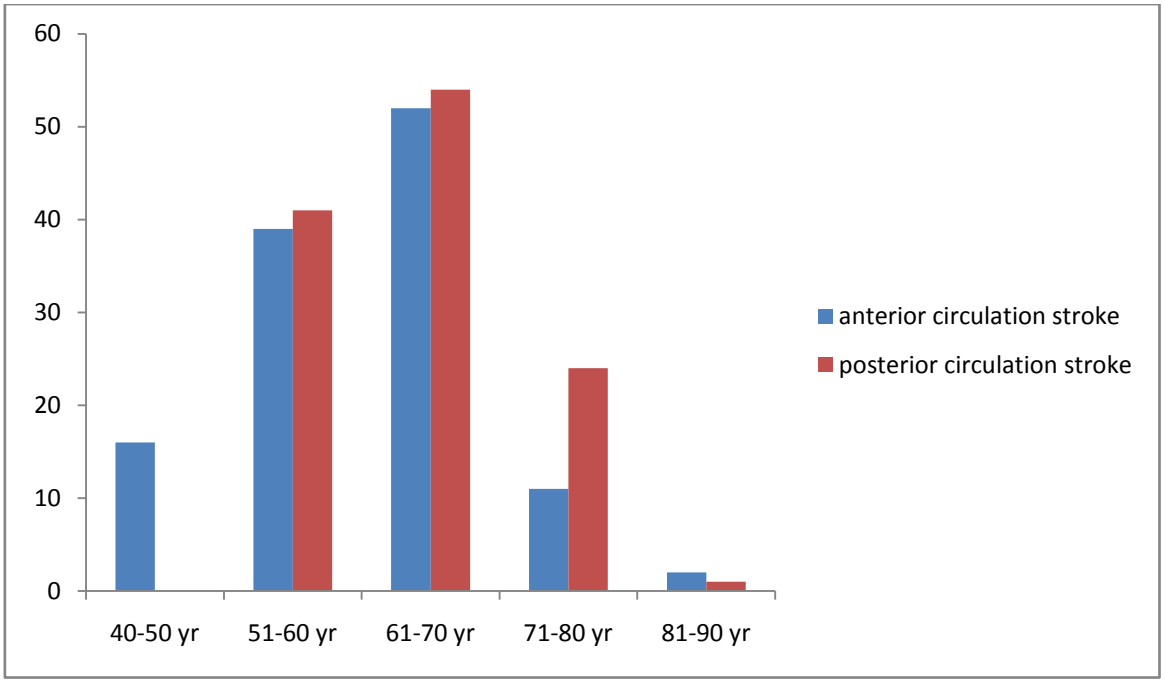


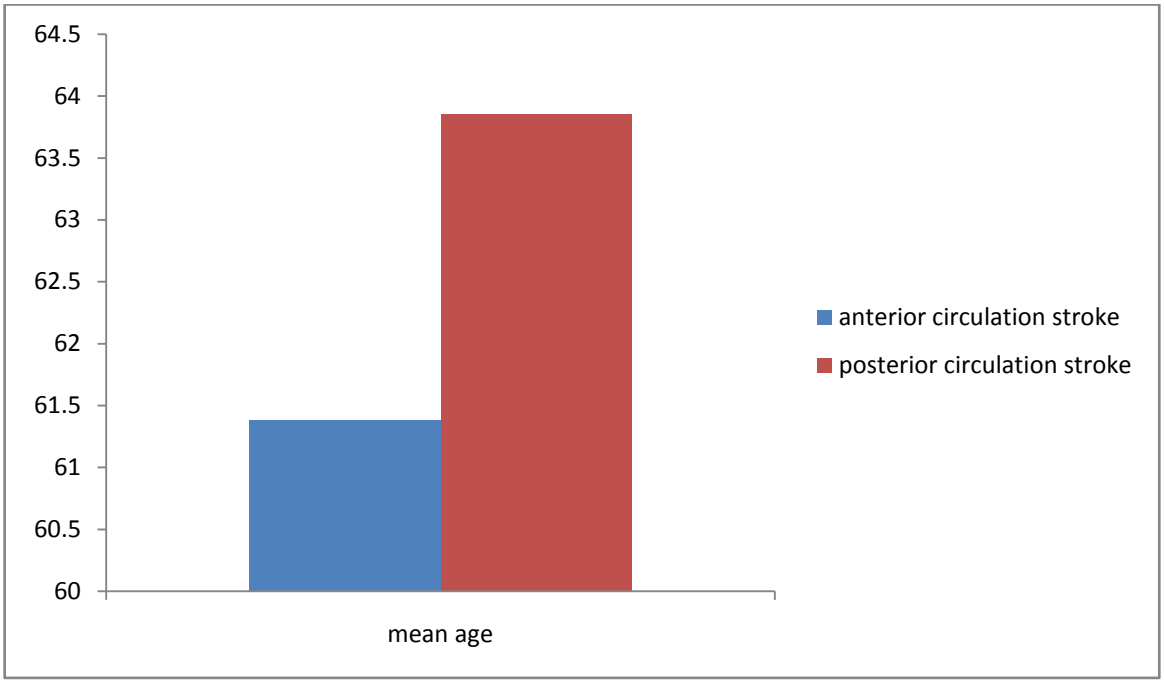
Table 3

AGE

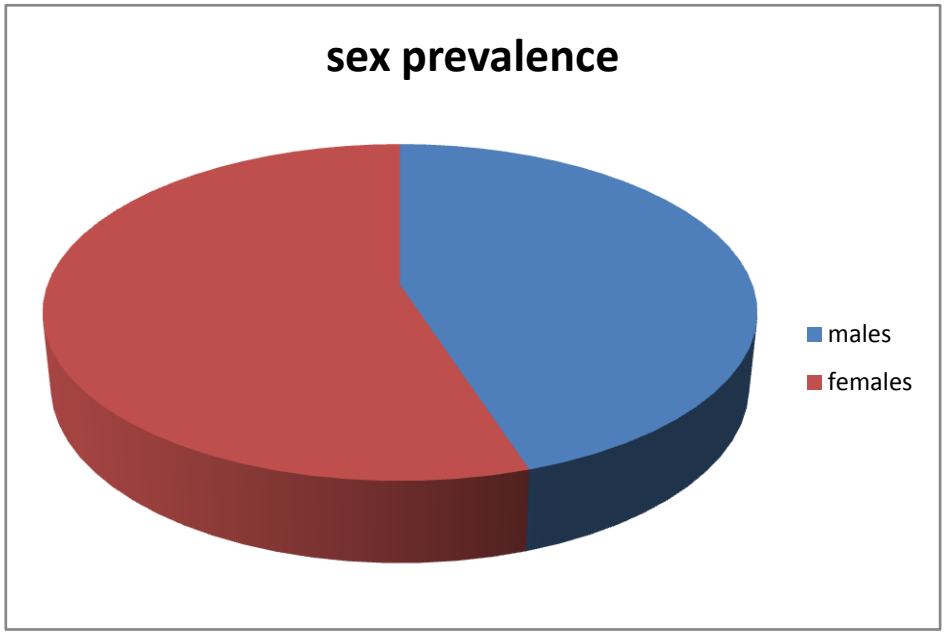
Age	Anterior circulation stroke	posterior circulation stroke
Mean	61.38	63.85
S.D	8.51	4.47
P value	**0.018 Significant**	

(P value based on **"one way anova"** test)

Mean Age comparison



Sex wise prevalence of anterior circulation stroke



Sex wise prevalence of posterior circulation stroke

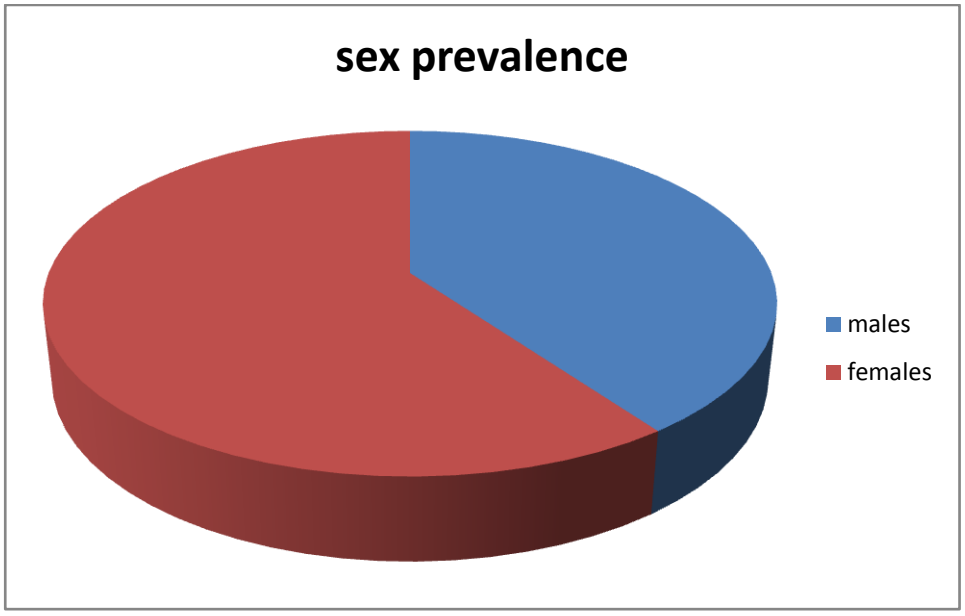


Table 4

Risk factors and anterior circulation stroke

Sl.No	Risk factors	Risk factors present (n)	No risk factors (n)
1	Hypertension	44	76
2	Diabetes mellitus	33	87
3	Hyperlipidemia	14	106
4	Smoking	16	104

Risk factors and anterior circulation stroke

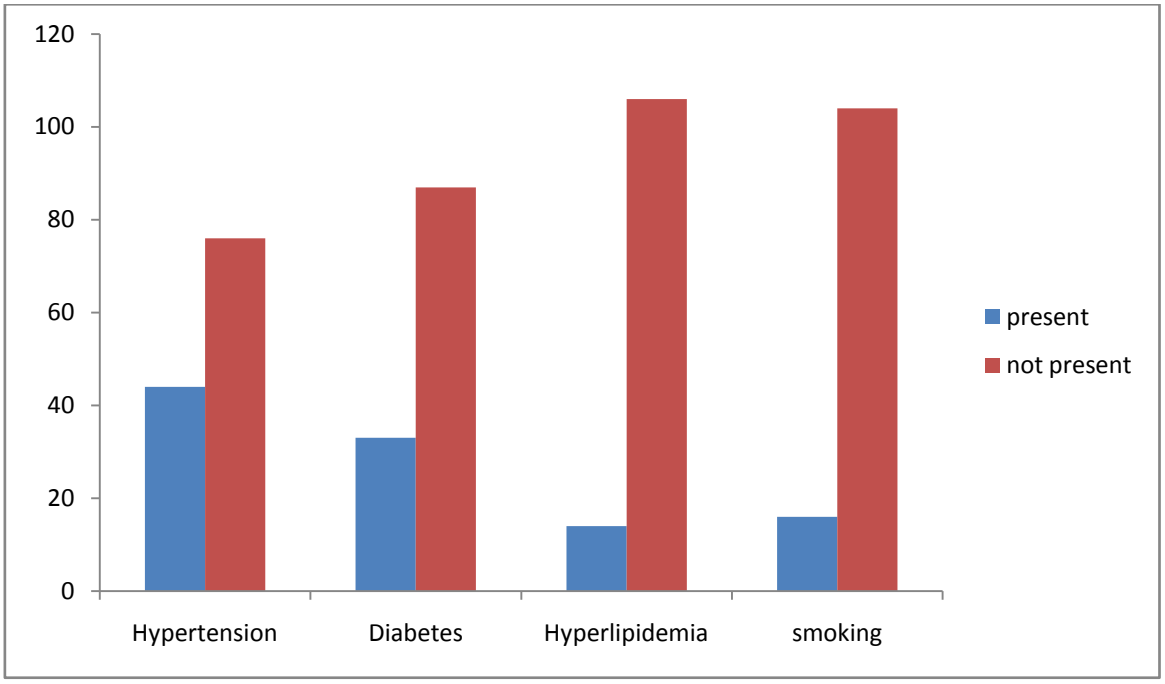


Table 5

Risk factors and posterior circulation stroke

Sl.No	Risk factors	Risk factors present (n)	No risk factors (n)
1	Hypertension	74	46
2	Diabetes mellitus	26	94
3	Hyperlipidemia	24	96
4	Smoking	43	77

Risk factors and posterior circulation stroke

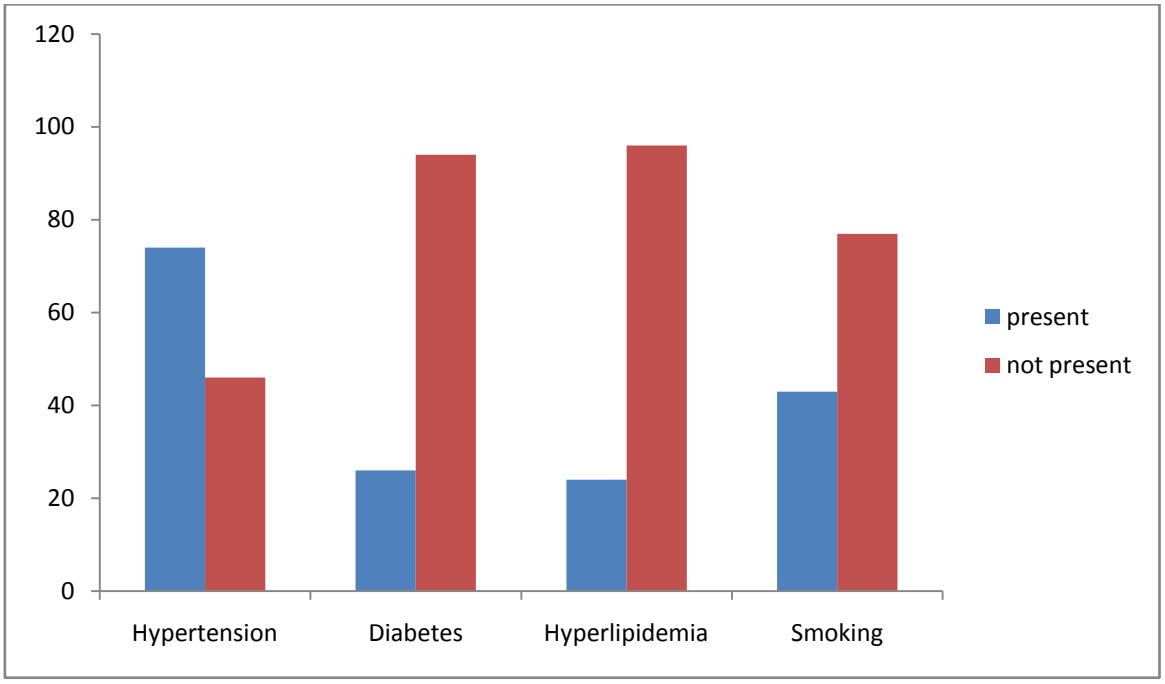


Table 6

Comparison of positive stroke risk factors

Sl.No	Risk factors	Anterior circulation stroke (no)	posterior circulation stroke (no)
1	Hypertension	44	74
2	Diabetes mellitus	33	26
3	Hyperlipidemia	14	24
4	Smoking	16	43

Comparison of positive risk factors

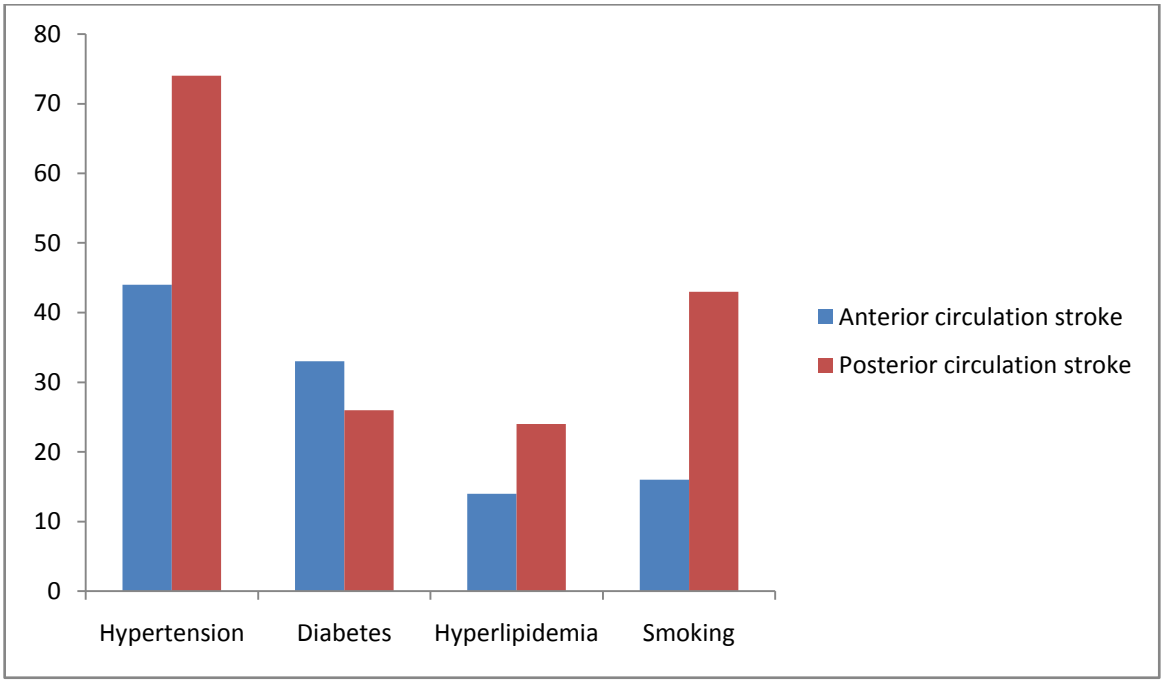


Table 7

Sex wise prevalence of risk factors

Sl.No	Risk factors	Anterior circulation stroke (no)	posterior circulation stroke (no)
1	Males	54 (45%)	48 (40%)
2	Females	66 (55%)	72 (60%)

Table 8

Sex

	Anterior circulation stroke	Posterior circulation stroke	**P value**
Male	54	48	0.704 **Not significant**
Female	66	72	0.764 **Not Significant**

(P value based on **"chi-square"** test)

Sex wise prevalence of risk factors

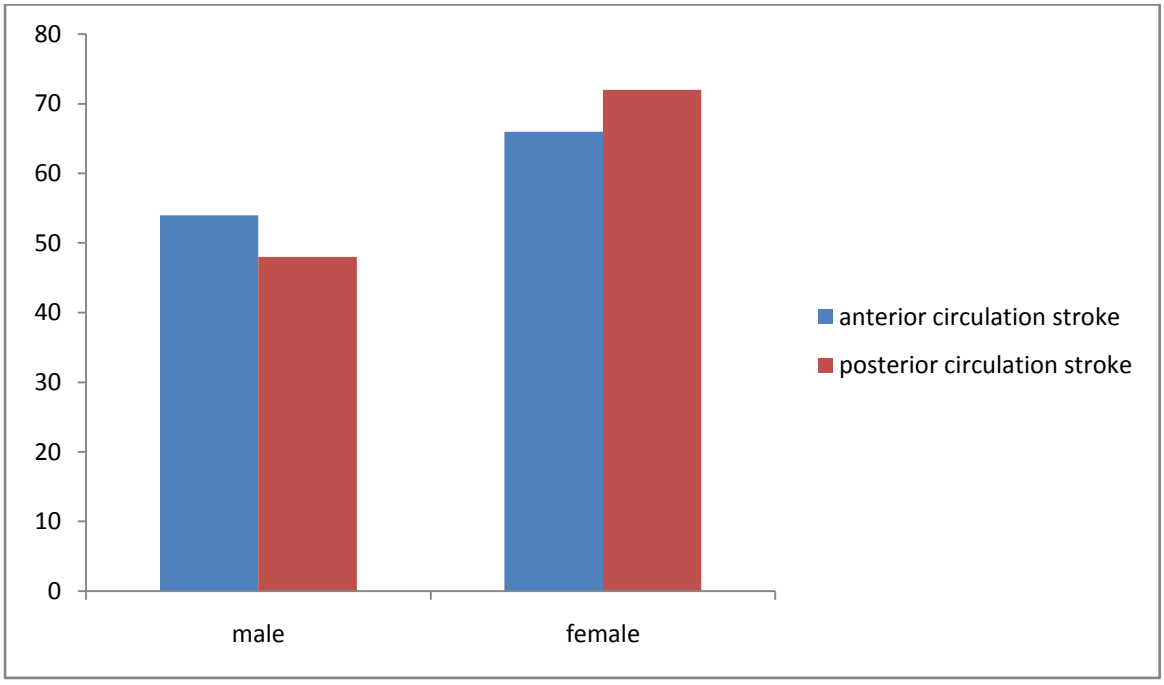


Table 9

Hypertension Prevalence

Sl.No	Risk factors	Anterior circulation stroke (no)	posterior circulation stroke (no)
1	Hypertensive	44 (36%)	74 (61.6%)
2	Non hypertensive	76 (63.3%)	46 (38.3%)

Table 10

HYPERTENSION

	Anterior circulation stroke	Posterior circulation stroke	**P value**
HYPERTENSION	44	74	**0.031**
Total cases	120	120	**significant**

(P value based on **"chi-square"** test)

Hypertension Prevalence

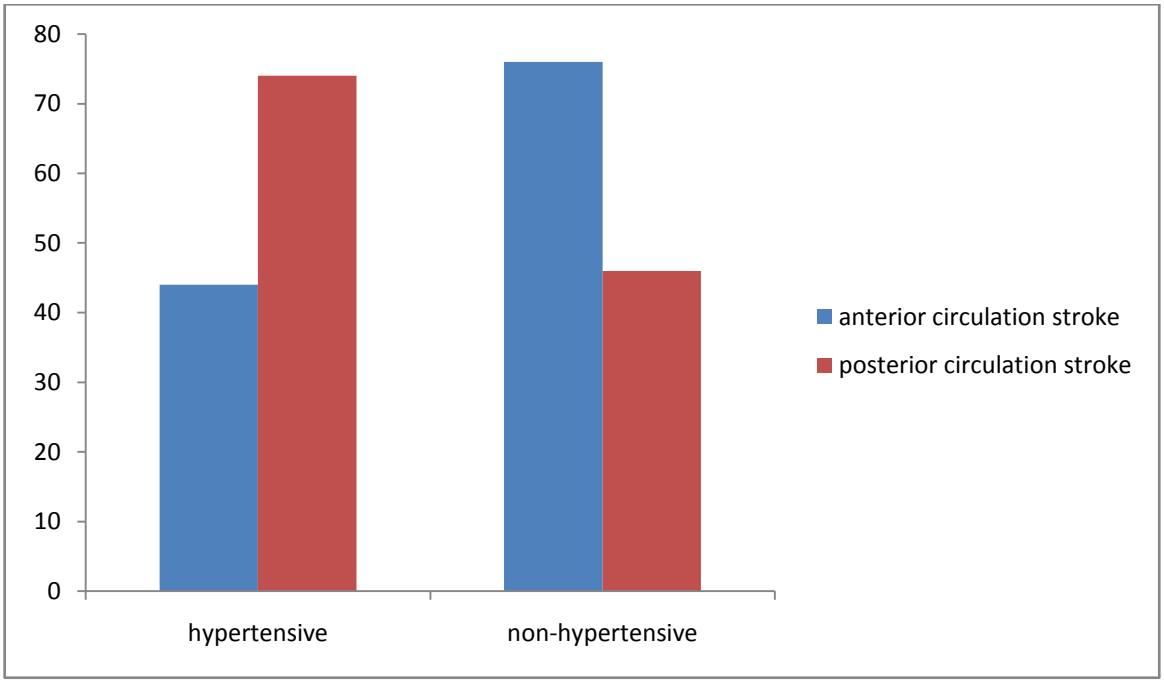


Table 11

SBP (systolic blood pressure)

SBP	Anterior circulation stroke	Posterior circulation stroke
Mean	142.22	156.12
S.D	27.68	22.33
P value	**< 0.001 Significant**	

(P value based **"one way anova"** test)

Mean SBP (systolic blood pressure)

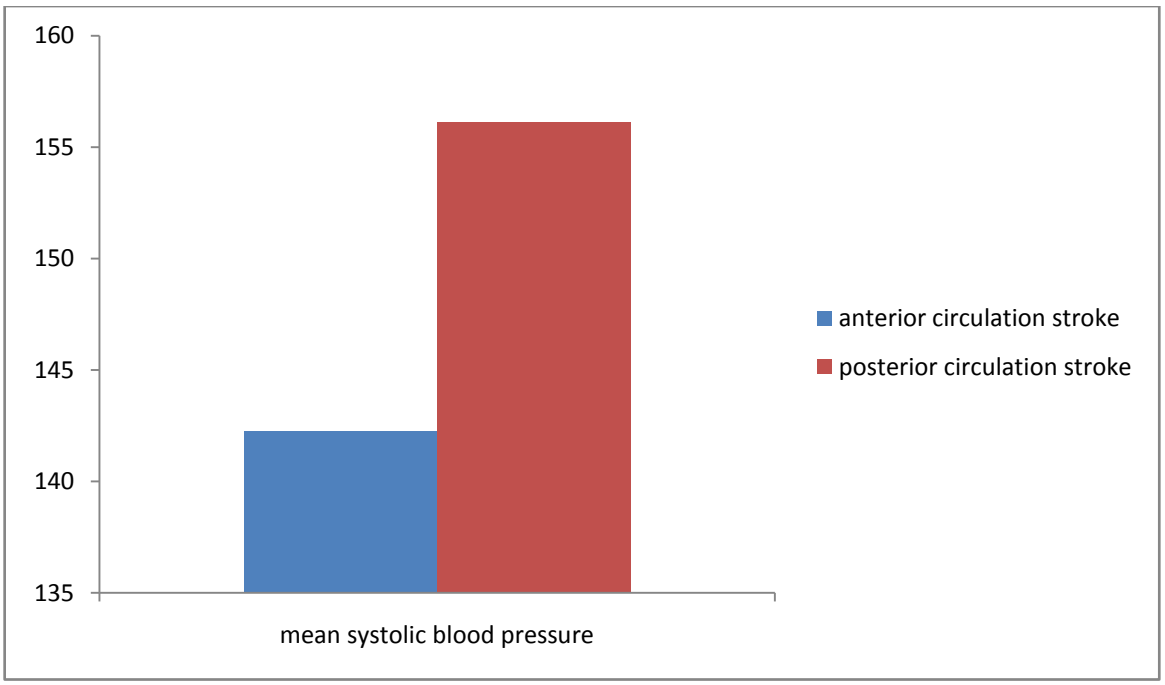


Table 12

DBP (diastolic blood pressure)

DBP	Anterior circulation stroke	Posterior circulation stroke
Mean	88.32	91.55
S.D	10.65	8.56
P value	**0.010 Significant**	

(P value based **"one way anova"** test)

Mean DBP (diastolic blood pressure)

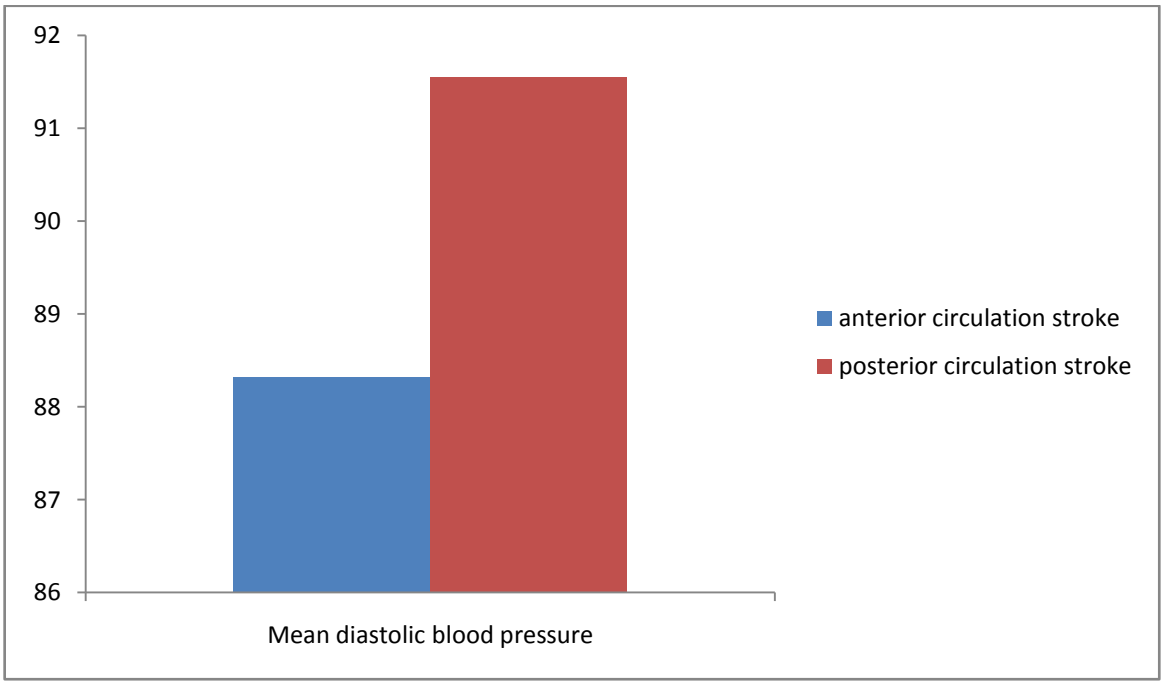


Table 13

Diabetes Prevalence

Sl.No	Risk factors	Anterior circulation stroke (no)	posterior circulation stroke (no)
1	Diabetic	33 (27.5%)	26 (21.6%)
2	Non diabetic	87 (72.5%)	94 (78.3%)

Table 14

DIABETES MELLITUS

	Anterior circulation stroke	Posterior circulation stroke	**P value**
DIABETES MELLITUS	33	26	**0.502**
Total cases	120	120	**Not significant**

(P value based on **"chi-square"** test)

Diabetes Prevalence

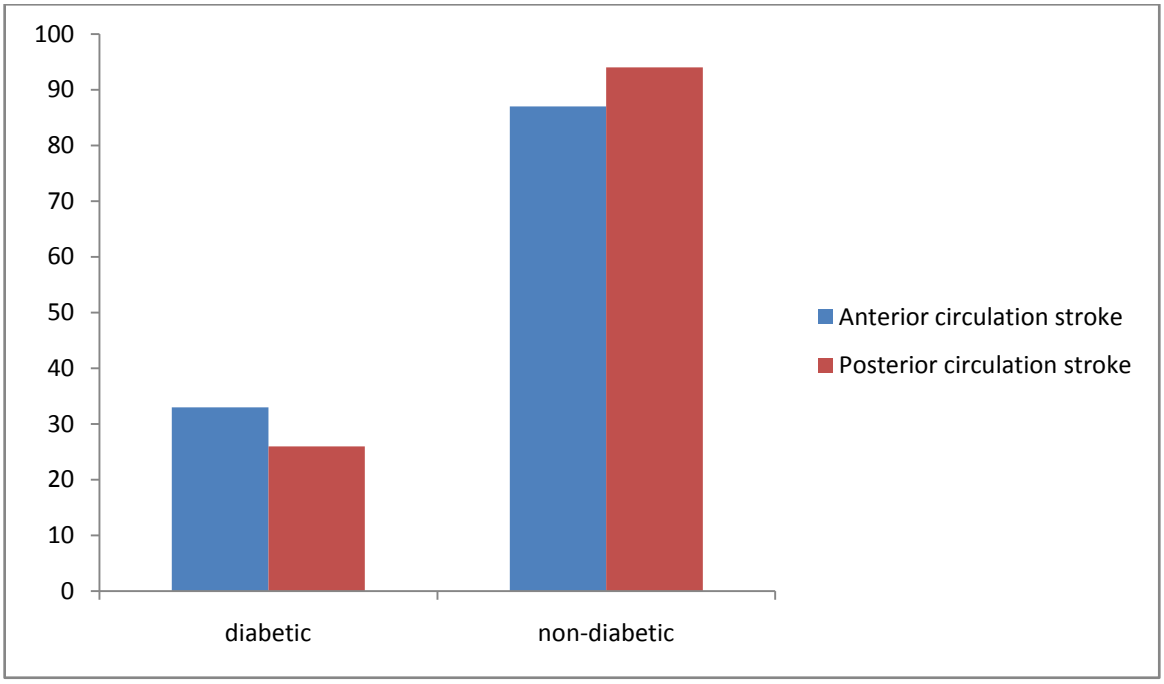


Table 15

FGL (fasting glucose)

FGL	Anterior circulation stroke	Posterior circulation stroke
Mean	133.98	133.67
S.D	19.12	15.69
P value	**0.889 Not Significant**	

(P value based **"one way anova"** test)

Mean FGL

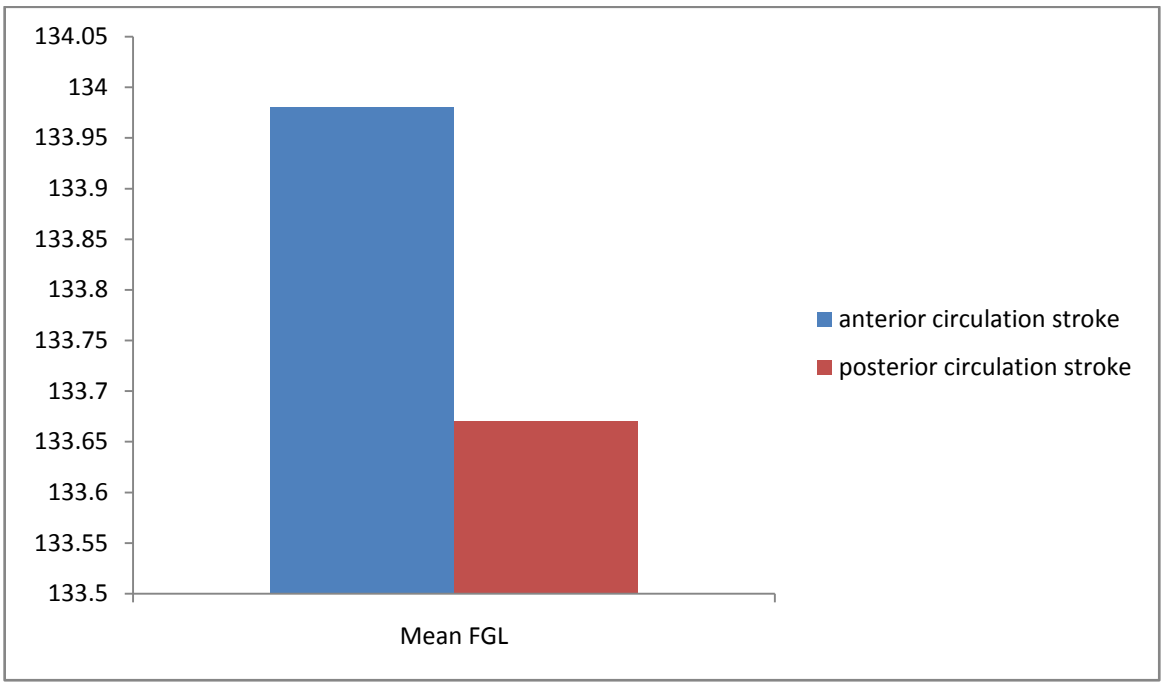


Table 16

Hyperlipidemia Prevalence

Sl.No	Risk factors	Anterior circulation stroke (no)	posterior circulation stroke (no)
1	Hyperlipidemia	14 (11.6%)	24 (20%)
2	No Hyperlipidemia	106 (88.3%)	96 (80%)

Table 17

HYPER LIPIDEMIA

	Anterior circulation stroke	Posterior circulation stroke	**P value** **(based on "chi-square" test)**
Hyperlipidemia	14	24	**0.182** **Not significant**
Total cases	120	120	

Hyperlipidemia Prevalence

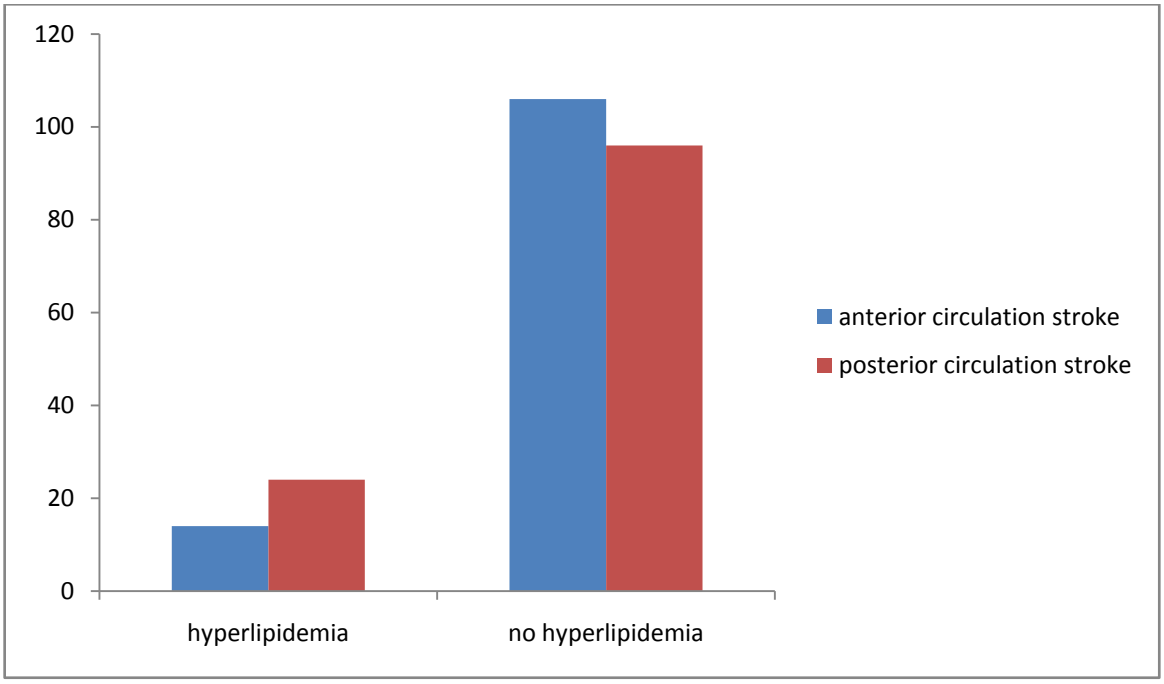


Table 18

LDL (low density lipoprotein)

LDL	Anterior circulation stroke	Posterior circulation stroke
Mean	121.32	123.73
S.D	14.55	1.46
P value	**0.223 Not Significant**	

(P value based **"one way anova"** test)

Mean LDL

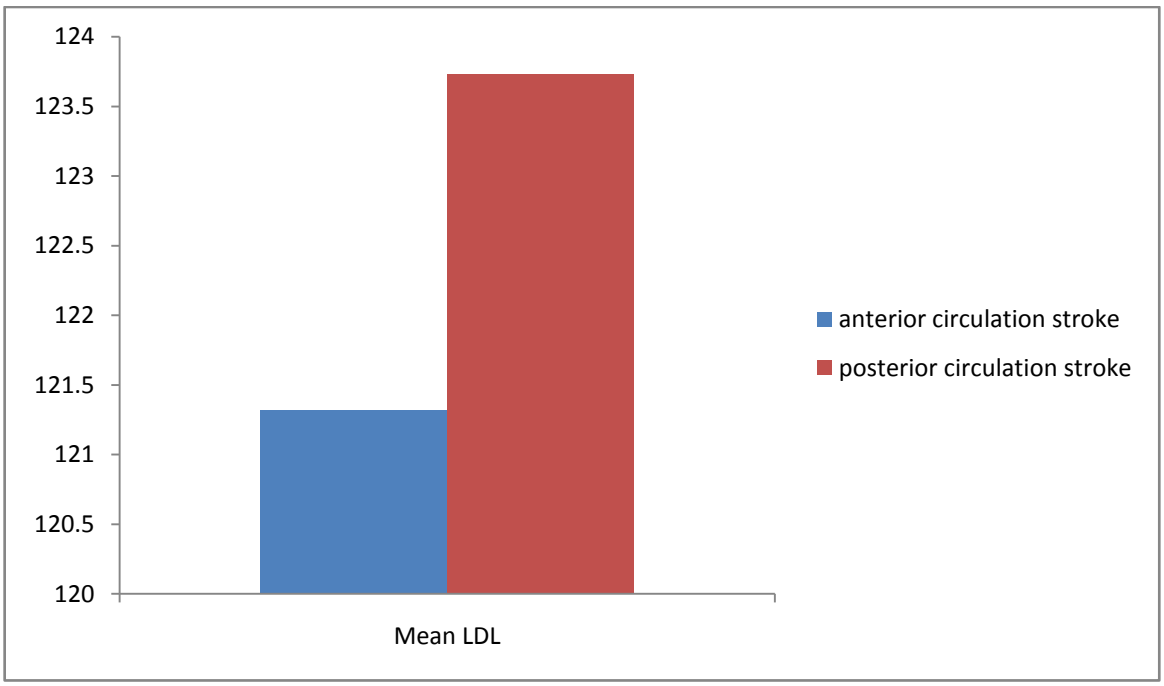


Table 19

Smoking Prevalence

Sl.No	Risk factors	Anterior circulation stroke (no)	posterior circulation stroke (no)
1	Males	16 (13.3%)	43 (35.8%)

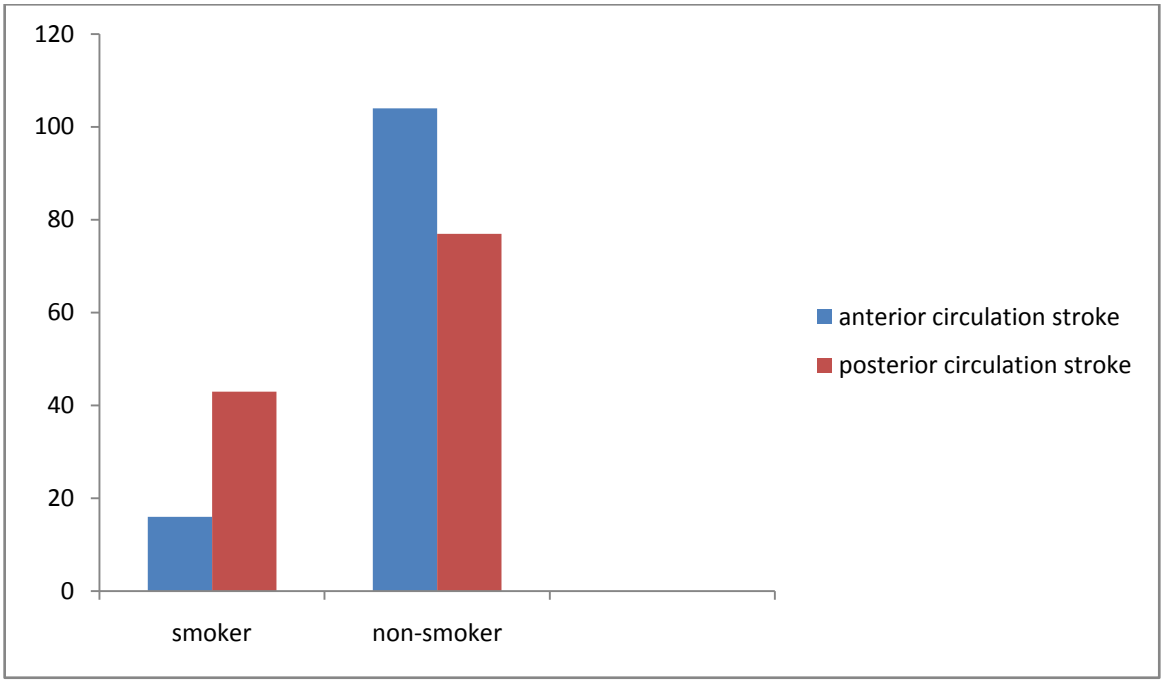
Table 20

SMOKING

	Anterior circulation stroke	Posterior circulation stroke	**P value**
SMOKING	16	43	**0.003** **significant**
Total cases	120	120	

(P value based on **"chi-square"** test)

Smoking Prevalence

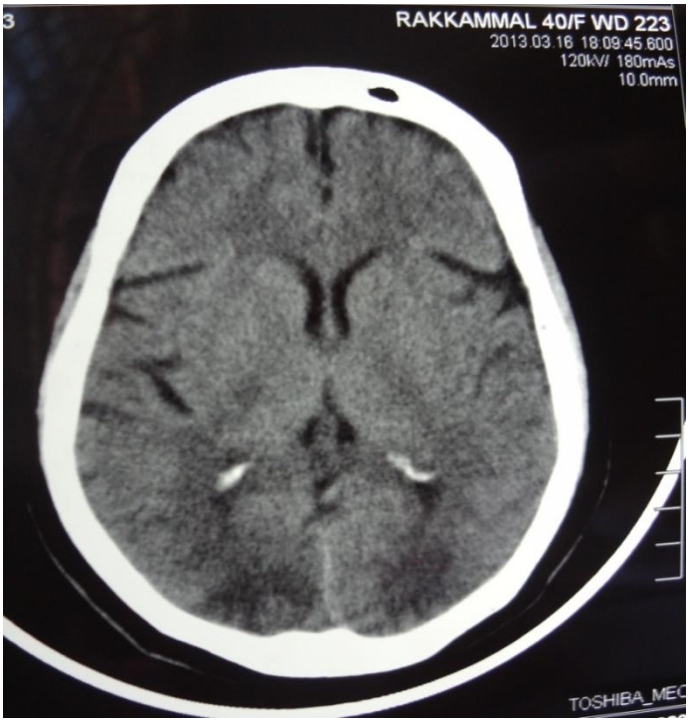


Anterior circulation stroke had patients with mean age group of 61 years. Posterior circulation stroke had Patients with mean age group of 64 years. Table 1, 2, 3 showed statistically important difference among the two stroke subtypes in age groups (p=0.018).

Table 7 showed that among 120 patients in anterior circulation stroke, 54 (45%)were males and 66 (55%) were females. Among 120 patients in posterior circulation stroke, 48 (40%) were males and 72 (60%) were females. Table 8 showed no statistical significant relationship exists between sex and stroke types and (p=0.704) for males, for females (p=0.764)

Table 9 showed the hypertensionprevalence , in posterior circulation stroke patients was greater when compared to anterior circulation stroke patients (61.6 % vs. 36.6%) and table 10 showed prevalence was statistically significant (p= 0.031).

Anterior circulation stroke



Posterior circulation stroke

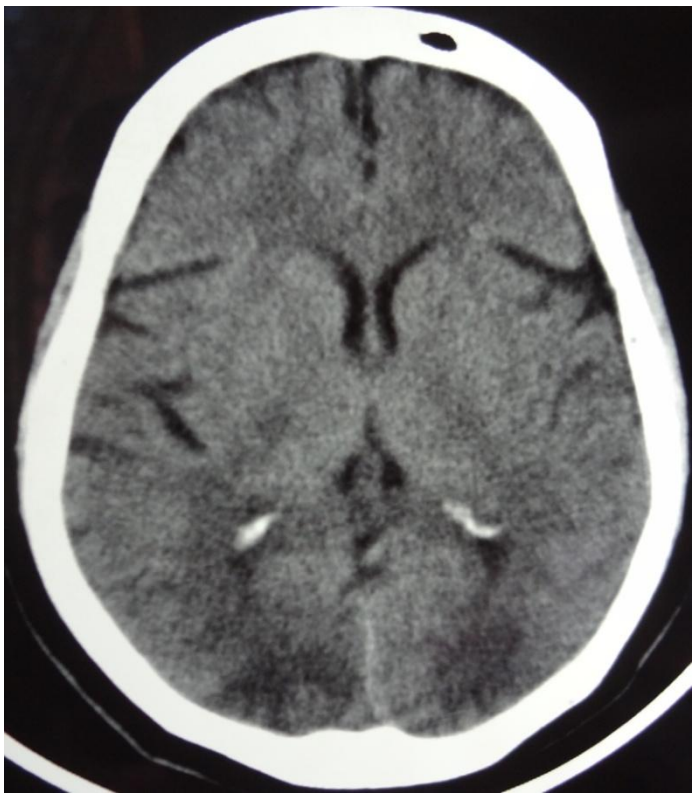


Table 14 showed regarding the diabetic prevalence as a stroke risk factor, between anterior circulation stroke and posterior circulation stroke (27.5 % vs. 21.6%) and statistically non-significant (p= 0.502).

Table 16 Hyperlipidemia prevalence between anterior circulation and posterior circulation stroke patients was (11.6 % vs. 20%).Table 17showed the difference between the two groups was not statistically significant.

At last, according to table 19, this study showed smoking was more prevalent in posterior circulation stroke than in anterior circulation stroke (35.8 % vs. 13.3%). Table 20 showed the difference among two stroke subtypes was statistically significant (p=0.003).

DISCUSSION

DISCUSSION

The stroke is leading cause of neurological disease in adult life. By knowing the prevalence of risk factors in both stroke subtypes, we can improve theprimary and secondary preventative strategies.

The cerebrovascular diseases rank first in frequency amongst the adult neurological diseases. It is important to understand the risk factors associated with stroke subtypes in order to improve primary and secondary preventative strategies.

Since nowadays both stroke subtypes tend to considered as separate entities because both having different underlying pathogenesis, natural histories, risk factors and responsiveness to treatment.

In the following discussion of the study, I explore difference between the prevalence of stroke risk factors with their stroke subtypes based on the study findings.

Many studies of stroke risk factors have not studied the difference between the prevalence of stroke risk factors between haemorrhagic stroke and ischemic stroke.

Some studies classified strokes as ischemic or haemorrhagic, some studies subdivided ischemic stroke as anterior and posterior circulation based on the prevalence of stroke risk factors.

Some studies compared the stroke subtypes and risk factors and found that important difference exist between stroke risk factors prevalence with the stroke subtypes.

Schulz UG, Rothwell PM studied these difference and found that systemic hypertension is the significant risk factor, with more prevalent in all stroke subtypes. Also found that hypertension is more common in bothmicroangiopathic stroke and larger arterial stroke than in cardio embolic stroke. Similar to above study, hypertension had a higher prevalence of 61.6% in posterior circulation stroke.

However the *Rochester Study* showed that no significant difference in prevalence of stroke risk factors among stroke subtypes.

The *Oxfordshire Community Stroke Project* showed no difference among prevalence of hypertension or diabetes mellitus between lacunar and cardio embolic stroke similar to Rochester Study

The *NINCDS Stroke Data Bank*, showed both hypertension and diabetes mellitus were more prevalent in ischemic strokes. *Fisher* suggested that small vessel ischemic disease causing lacunar stroke mainly due to hypertension.

In my study, hypertension as a stroke risk factor has greater prevalence in posterior circulation (61.6%) stroke than in anteriorcirculation stroke (36.6%) which was statistically significant (p=0.031). Study also showed both average systolic blood pressure (156mm Hg) with (p=<0.001) and average diastolic blood pressure (92 mm Hg)

with (p=0.010) was greater and statistically more significant inposterior circulation stroke.

But regarding the other stroke risk factor diabetes mellitus (p=0.502) no significant difference between stroke subtypes in its prevalence with mean fasting sugar of 134 mg.

Hypercholesterolemia prevalence between stroke subtypes has contradictory results in many studies due to reasons that some study did not include this risk factor, and in another study showed no role in stroke etiology.In large-artery atherosclerosis, hypercholesterolemia has high prevalence and identified as an important risk factor for atherothrombotic stroke.

My study results also showed, hyperlipidemia a significant stroke risk factor and its prevalence almost equal for both subtypes with (p=0.182) and mean LDL level of 124 mg/dl.

Mousavi et al found that smoking as a stroke risk factor mainly by large-artery atherosclerosis. Smoking may also contribute to stroke in younger population. This study showed Similar to results of hypertension, smoking was more prevalent in posterior circulation stroke than in anterior circulation stroke with (p=0.003) which was statistically significant.

This study showed both stroke subtypes was more prevalent in women than in males. Both stroke subtypes were more common on average sixty years (Table 1 and 2). This study showed anterior circulation stroke occurs earlier than posterior circulation stroke with (p=0.018)which was statistically significant when compared with other studies.

SUMMARY AND CONCLUSION

1. 120 cases of each stroke subtypes were studied and their stroke risk factor profiles were assessed.

2. Stroke risk factor profile of both anterior circulation stroke and posterior circulation stroke were compared and analysed statistically.

3. Study showed in anterior circulation stroke, the age of stroke occurrence was earlier than posterior circulation stroke and was statistically significant.

4. Study showed stroke was more prevalent in females than males in both stroke subtypes.

5. On comparing the risk factor- diabetes, between anterior and posterior circulation stroke, there was statistically non-significant difference in prevalence of this risk factor between these groups.

6. Considering the prevalence of hyperlipidemia among both stroke sub groups, there was no significant difference statistically.

7. The study showed both hypertension and smoking, the major stroke risk factor had higher occurrence among posterior circulation stroke group than other stroke subgroup.

8. As Posterior circulation stroke are more severe in nature, control of both these more prevalent risk factor like hypertension and smoking helps to reduce the mortality of stroke.

PROFORMA

PROFORMA

Name :

Age :

Sex :

Hospital No :

Date of admission :

Date of discharge :

Occupation :

Address :

HISTORY

Hypertension :

Diabetes :

Smoking :

Alcohol :

H/O TIA :

H/O of prior stroke :

H/O of CAD :

Family H/O of DM/HT :

Family H/O of CVA/CAD :

Any bleeding diasthesis :

Focal deficits :

Motor

Sensory

Visual

Pattern of progression :

Aphasia type :

Headache and vomiting :

Associated seizure :

Examination :

Pulse :

BP :

Consciousness

Language

Fundus

Facial palsy

Lower cranial nerve palsy

Motor system

Sensory system

Carotids

Cerebellar sign

Other systems

Investigation

Lipid profile :

Carotid and vertebral Doppler:

CT Brain :

MRI Brain :

ECHO :

Inclusion criteria:

- Age greater than 40 years.
- Agreed to participate in the study and sign the consent form.
- Hypertension > 140/90 mm Hg.
- Diabetes -fasting blood sugar >140 mg/dl.
- Fasting Total cholesterol > 240 mg/dl.
- Fasting LDL cholesterol > 130 mg/dl.

Exclusion criteria:

- Patient's refusal to participate in the study.
- Patients with haematological malignancies and bleeding diasthesis.
- Patients with cardiac disease and atrial fibrillation.

Master chart

Anterior circulation stroke

Sl.no	Name	Age	Sex	SBP	DBP	FGL	TC	LDL	Smoking	SHT	DM	HPL
1	Raja	70	M	150	100	150	250	140	Y	Y	Y	Y
2	Alagar	65	M	130	80	110	260	170	N	N	N	Y
3	Parvathi	62	F	190	100	120	200	120	N	Y	N	N
4	Pappa	65	F	130	86	110	254	136	N	N	N	Y
5	Sundar	64	M	128	74	150	230	120	Y	N	Y	N
6	Meenachi	70	F	192	96	112	264	140	N	Y	N	Y
7	Selvam	68	M	138	88	130	230	110	N	N	N	N
8	Murugesan	74	M	120	84	110	200	120	N	N	N	N
9	Ganapathi	54	M	200	100	162	202	128	N	Y	Y	N
10	Kumari	68	F	138	86	126	230	128	N	N	N	N
11	Lakshmi	62	F	126	80	110	200	120	N	N	N	N
12	Devi	69	F	110	80	156	178	100	N	N	Y	N
13	Mani	58	M	138	88	130	200	112	Y	N	N	N
14	Srinivasan	69	M	128	78	142	200	120	N	N	Y	N
15	Parvatam	53	F	210	110	116	198	110	N	Y	N	N
16	Mangalam	62	F	110	86	120	270	136	N	N	N	Y
17	Subbu	58	M	126	86	120	188	110	N	N	N	N
18	Manickam	74	M	132	88	158	200	112	N	N	Y	N
19	Sudha	58	F	164	96	120	188	128	N	Y	N	N
20	Murugan	68	M	120	88	156	200	120	Y	N	Y	N
21	Kumara	50	F	120	84	120	200	128	N	N	N	N
22	Kasi	68	M	124	88	148	168	100	N	N	Y	N
23	Ayeesa	80	F	170	98	134	178	102	N	Y	N	N
24	Jerina	67	F	192	100	128	204	128	N	Y	N	N
25	Manohar	58	M	134	86	120	174	112	Y	N	N	N
26	jasmin	68	F	110	80	110	168	100	N	N	N	N
27	Hari	64	M	120	82	120	264	142	N	N	N	Y
28	Rosalin	70	F	180	100	112	200	120	N	Y	N	N
29	Kathiga	62	F	184	96	162	200	122	N	Y	Y	N
30	Sundaresan	68	M	120	88	130	168	102	N	N	N	N
31	Pandi	50	M	130	98	110	168	110	N	N	N	N
32	Kandan	64	M	160	96	128	280	162	N	Y	N	Y
33	Anand	50	M	134	82	170	206	120	Y	N	Y	N
34	Lakshmi	48	F	110	86	120	166	124	N	N	N	N
35	Vishnu	64	M	156	102	128	250	148	Y	Y	N	Y
36	Ganesan	68	M	134	78	164	186	106	Y	N	Y	N
37	Joseph	69	M	128	84	128	200	120	Y	N	N	N
38	Begam	61	F	186	96	124	198	112	N	Y	N	N
39	Sangeeta	46	F	110	84	152	200	128	N	N	Y	N
40	Rani solai	54	F	110	84	112	204	102	N	N	N	N
41	Sankar	56	M	196	98	160	164	120	N	Y	Y	N
42	Tamilselvi	66	F	134	86	130	200	114	N	N	N	N

Sl.no	Name	Age	Sex	SBP	DBP	FGL	TC	LDL	Smoking	SHT	DM	HPL
43	Mangai	58	F	148	100	132	168	120	N	Y	N	N
44	Kannan	59	M	128	78	110	166	122	N	N	N	N
45	Kathigabegam	60	F	172	94	152	200	120	N	Y	Y	N
46	Kavitha	58	F	110	82	120	174	122	N	N	N	N
47	Suresh	56	M	128	78	134	204	126	N	N	N	N
48	Malliga	59	F	168	102	162	188	102	N	Y	Y	N
49	Subbu	61	F	172	98	124	190	110	N	Y	N	N
50	Subbulakshmi	63	F	120	88	134	200	120	N	N	N	N
51	Sathesh	54	M	136	82	162	176	102	N	N	Y	N
52	Vijaya	69	F	156	92	134	168	120	N	Y	N	N
53	Girija	55	F	110	80	136	264	152	N	N	N	Y
54	Mugesh	59	M	124	88	124	164	102	N	N	N	N
55	Mangalam	65	F	134	84	128	200	124	N	N	N	N
56	Karuppi	82	F	174	104	164	188	124	N	Y	Y	N
57	karuppan	51	M	110	86	124	200	110	Y	N	N	N
58	Valli	58	F	120	80	112	176	110	N	N	N	N
59	Kumar	56	M	168	110	134	186	100	N	Y	N	N
60	Vasanthi	56	F	112	82	126	184	128	N	N	N	N
61	Krishnan	69	M	102	78	118	200	124	N	N	N	N
62	Patturaja	70	M	192	112	132	204	112	N	Y	N	N
63	Alagu	69	M	134	78	148	234	128	N	N	Y	N
64	Rani	53	F	156	98	138	222	100	N	Y	N	N
65	Priya	68	F	124	76	128	212	112	N	N	N	N
66	Boja	60	M	168	92	118	200	128	N	Y	N	N
67	Jeyanthi	52	F	134	78	172	264	164	N	N	Y	Y
68	Suresh	51	M	158	98	112	220	114	Y	Y	N	N
69	Mariammal	67	F	164	98	164	224	126	N	Y	Y	N
70	Kaliyammal	69	F	168	94	122	226	124	N	Y	N	N
71	Saranya	50	F	114	80	126	228	114	N	N	N	N
72	Maheswaran	66	M	116	76	170	176	100	N	N	Y	N
73	Velammal	69	F	168	112	124	168	110	N	Y	N	N
74	Sekar	53	M	112	86	134	178	118	N	N	N	N
75	Puspa	80	F	136	88	168	164	112	N	N	Y	N
76	Saran	66	M	124	74	134	222	162	N	N	N	Y
77	Saraswathi	73	F	112	72	164	184	122	N	N	Y	N
78	Seeniyammal	76	F	150	100	136	186	128	N	Y	N	N
79	Manickam	55	M	138	82	118	178	126	N	N	N	N
80	Ambika	59	F	134	86	172	166	110	N	N	Y	N
81	Lakshmi	53	F	168	92	114	156	112	N	Y	N	N
82	Raman	67	M	120	88	124	158	116	Y	N	N	N
83	Nagu	61	F	128	84	116	200	118	N	N	N	N
84	Pallavi	73	F	172	100	154	194	120	N	Y	Y	N
85	puspam	67	F	134	76	112	196	122	N	N	N	N
86	Ilayaraja	67	M	124	74	100	200	124	N	N	N	N
87	Jeya	51	F	132	72	192	168	126	N	N	Y	N
88	Ponnuthai	59	F	154	112	100	188	128	N	Y	N	N
89	Muthu	60	M	112	78	138	176	126	N	N	N	N
90	Pethchi	66	F	124	88	172	268	150	N	N	Y	Y
91	Vani	58	F	168	98	124	168	122	N	Y	N	N

Sl.no	Name	Age	Sex	SBP	DBP	FGL	TC	LDL	Smoking	SHT	DM	HPL
92	shyam	67	M	102	80	112	178	112	N	N	N	N
93	Veeralakshmi	55	F	120	76	126	182	100	N	N	N	N
94	shayamala	63	F	118	82	170	164	128	N	N	Y	N
95	Iyyakannu	71	M	124	76	128	146	124	N	Y	N	N
96	Pothumponnu	71	F	178	110	134	168	116	N	Y	N	N
97	Rajan	59	M	134	74	148	200	114	N	N	Y	N
98	Sunder rajan	57	M	196	100	122	204	128	Y	Y	N	N
99	Gowri	47	F	132	76	124	182	124	N	N	N	N
100	Bhuvana	53	F	118	88	162	280	168	N	N	Y	Y
101	Muthukumar	61	M	200	100	126	206	100	N	Y	N	N
102	Bhavana	63	F	198	102	128	208	110	N	Y	N	N
103	sanmugam	47	M	114	72	138	176	112	Y	N	N	N
104	Karuupi	68	F	116	78	152	178	128	N	N	Y	N
105	Sujan	46	M	158	92	134	164	126	N	Y	N	N
106	Rathinakumari	49	F	138	76	136	158	124	N	N	N	N
107	Ranjani	51	F	168	102	128	176	114	N	Y	N	N
108	Ramamoorthy	82	M	134	82	110	200	112	Y	N	N	N
109	Krishnaveni	71	F	192	100	164	208	110	N	Y	Y	N
110	Eswari	61	F	124	84	138	258	150	N	N	N	Y
111	Velkumar	49	M	220	110	122	210	118	N	Y	N	N
112	Uma maheswari	50	F	126	88	134	206	116	N	N	N	N
113	Nemalan	48	M	128	80	128	182	124	N	N	N	N
114	Uma	64	F	134	72	126	168	126	N	N	N	N
115	Vanilla	73	F	168	110	170	176	124	N	Y	Y	N
116	Sivalingam	68	M	138	88	134	186	126	Y	N	N	N
117	Jaffer	47	M	114	72	128	148	128	N	N	N	N
118	Christi	49	F	168	100	124	200	110	N	Y	N	N
119	Vel	51	M	126	76	122	248	148	N	N	N	Y
120	Vinodh	47	M	128	74	136	222	124	N	N	N	N

Master chart

Posterior circulation stroke

Sl.no	Name	sex	Age	SBP	DBP	FGL	TC	LDL	Smoking	SHT	DM	HPL
1	Siva	65	M	150	96	128	200	110	Y	Y	N	N
2	Meenatchi	60	F	164	98	112	178	120	N	Y	N	N
3	Uma	62	F	132	80	154	180	112	N	N	Y	N
4	Mahesh	58	M	156	100	136	250	140	Y	Y	N	Y
5	Backium	70	F	138	88	134	186	122	N	N	N	N
6	Babu	64	M	158	102	156	188	122	N	Y	Y	N
7	Ponnuthai	68	F	128	80	128	190	128	N	N	N	N
8	Megala	56	F	200	110	126	168	124	N	Y	N	N
9	Karuppi	80	F	126	80	158	264	142	N	N	Y	Y
10	Anbu	61	M	146	100	124	192	100	Y	Y	N	N
11	Chinnaponnu	66	F	170	100	128	186	102	N	Y	N	N
12	Madhavi	67	F	124	82	146	178	128	N	N	Y	N
13	Manikandan	73	M	164	98	134	168	102	Y	Y	N	N
14	Chitra	68	F	180	96	132	268	154	N	Y	N	Y
15	Devi	63	F	164	94	164	168	114	N	Y	Y	N
16	Madesh	63	M	138	82	136	200	104	Y	N	N	N
17	Sakthi	69	F	162	92	126	204	120	N	Y	N	N
18	Maheswari	67	F	136	88	168	206	114	N	N	Y	N
19	Kathisbeevi	71	F	124	86	124	178	106	N	N	N	N
20	Sukumar	72	M	168	100	134	206	116	Y	Y	N	N
21	Chokkan	71	M	134	84	162	200	112	Y	N	Y	N
22	Valli	53	F	136	82	136	250	140	N	N	N	Y
23	Usha	57	F	172	110	168	208	118	N	Y	Y	N
24	Christi	63	F	112	78	134	206	120	N	N	N	N
25	Santhosh	64	M	134	88	146	168	144	Y	N	Y	Y
26	Veni	59	F	200	102	118	210	112	N	Y	N	N
27	Mangaleswari	57	F	138	84	116	201	108	N	N	N	N
28	Priyanka	55	F	136	82	112	222	124	N	N	N	N
29	Christopher	68	M	168	98	132	238	110	Y	Y	N	N
30	Nisha	53	F	134	80	112	236	124	N	N	N	N
31	Janni	69	F	166	94	164	226	126	N	Y	Y	N
32	James	59	M	156	96	128	268	150	Y	Y	N	Y
33	Mahalakshmi	71	F	176	96	124	238	112	N	Y	N	N
34	Manickam	61	M	128	78	126	224	128	Y	N	N	N
35	Arivu	63	M	186	98	134	224	114	Y	Y	N	N
36	Viji	65	F	126	76	128	220	124	N	N	N	N
37	Alagesan	71	M	164	100	136	264	146	Y	Y	N	Y
38	Papathi	63	F	186	94	128	178	112	N	Y	N	N
39	Vijyalakshmi	52	F	176	98	124	168	116	N	Y	N	N
40	Muthuraj	69	M	124	72	148	186	116	Y	N	Y	N
41	Sivakami	51	F	168	98	112	188	114	N	Y	N	N
42	Sakthidevi	72	F	172	98	118	254	168	N	Y	N	Y
43	Shenbagarajan	61	M	164	96	116	200	118	Y	Y	N	N
44	Vasuki	68	F	168	92	124	176	120	N	Y	N	N

Sl.no	Name	Age	Sex	SBP	DBP	FGL	TC	LDL	Smoking	SHT	DM	HPL
45	Meena	71	F	134	82	128	174	112	N	N	N	N
46	Elango	68	M	164	94	126	186	120	Y	Y	N	N
47	Kavitha	55	F	148	92	132	268	158	N	Y	N	Y
48	Thirumurugan	56	M	172	98	168	186	128	Y	Y	Y	N
49	Thangavel	57	M	174	98	132	188	126	Y	Y	N	N
50	Sundari	80	F	136	84	124	200	124	N	N	N	N
51	Shanmugam	53	M	132	82	126	210	124	Y	N	N	N
52	Alagi	79	F	130	80	146	220	128	N	N	Y	N
53	Nagammal	66	F	168	96	124	264	162	N	Y	N	Y
54	Riyaz	63	M	148	94	126	220	124	Y	Y	N	N
55	Elios	67	M	162	92	128	222	122	Y	Y	N	N
56	Kaleswari	78	F	128	82	148	178	112	N	N	Y	N
57	Alagammal	71	F	168	98	126	174	118	N	Y	N	N
58	Udhayan	63	M	164	94	124	264	152	Y	Y	N	Y
59	Xavior	64	M	124	80	128	176	126	Y	N	N	N
60	Tamilarasi	55	F	174	100	168	184	116	N	Y	Y	N
61	Parameswari	62	F	138	86	126	186	100	N	N	N	N
62	Senthil	56	M	126	82	128	182	104	Y	N	N	N
63	Saravanan	66	M	168	96	128	268	152	Y	Y	N	Y
64	Sangeeeta	51	F	134	84	166	192	128	N	N	Y	N
65	Rathinam	64	F	174	100	124	196	106	N	Y	N	N
66	Murugan	68	M	168	94	126	198	108	Y	Y	N	N
67	Andal	53	F	176	102	154	248	146	N	Y	Y	Y
68	Devaki	66	F	182	92	132	200	110	N	Y	N	N
69	Bala	69	M	168	96	138	168	112	Y	Y	N	N
70	Padmavathi	68	F	132	86	134	246	142	N	N	N	Y
71	Saroja	55	F	136	82	124	176	112	N	N	N	N
72	Salini	60	F	164	94	126	192	112	N	Y	N	N
73	Balasubramani	57	M	168	92	134	272	168	Y	Y	N	Y
74	Ramathilagam	52	F	164	96	128	198	128	N	Y	N	N
75	Sarojini	54	F	138	82	112	194	124	N	N	N	N
76	Subramani	55	M	176	98	172	280	162	Y	Y	Y	Y
77	Natchiar	57	F	186	100	134	188	114	N	Y	N	N
78	Riffai	61	M	182	104	112	196	110	Y	Y	N	N
79	Kannathal	56	F	176	102	116	268	154	N	Y	N	Y
80	Priya	58	F	134	84	118	168	116	N	N	N	N
81	Muthukumar	56	M	164	94	134	188	114	Y	Y	N	N
82	Alagami	59	F	168	92	124	250	140	N	Y	N	Y
83	Pallavi	60	F	164	96	128	176	118	N	Y	N	N
84	Suresh	57	M	172	98	134	256	148	N	Y	N	Y
85	Senthur	56	M	124	80	168	198	120	Y	N	Y	N
86	Chandrasekar	63	M	126	82	126	192	118	N	N	N	N
87	Chitradevi	61	F	174	94	134	256	152	N	Y	N	Y
88	Ayyadurai	72	M	184	100	136	200	114	Y	Y	N	N
89	Ammaponnu	62	F	182	104	128	210	120	N	Y	N	N
90	Chellathai	63	F	128	84	124	176	116	N	N	N	N
91	Pandi	71	M	164	98	154	220	112	Y	Y	Y	N
92	Kamalam	64	F	132	82	112	184	122	N	N	N	N
93	ayyammal	66	F	168	96	134	222	118	N	Y	N	N
94	Jerrina	68	F	130	86	112	196	114	N	N	N	N
95	Sankar	66	M	164	92	152	230	124	Y	Y	Y	N

Sl.no	Name	Age	Sex	SBP	DBP	FGL	TC	LDL	Smoking	SHT	DM	HPL
96	Saranyadevi	65	F	134	84	132	248	142	N	N	N	Y
97	Nagamalar	68	F	182	96	128	186	112	N	Y	N	N
98	Ganapathi	67	M	200	100	126	176	128	Y	Y	N	N
99	Nagakanni	70	F	146	92	134	194	118	N	Y	N	N
100	Anbuselvam	56	M	210	110	176	288	164	Y	Y	Y	Y
101	Malar	67	F	138	88	128	168	126	N	N	N	N
102	Karuppiah	55	M	136	80	124	176	100	Y	N	N	N
103	Kandan	72	M	128	78	126	196	128	N	N	N	N
104	Bapitha	72	F	168	92	126	258	142	N	Y	N	Y
105	Ghandimathi	69	F	134	82	128	200	102	N	N	N	N
106	Selvakumar	67	M	172	94	168	178	124	Y	Y	Y	N
107	Malarkodi	74	F	136	84	124	186	124	N	N	N	N
108	Chelian	53	M	134	86	128	210	104	Y	N	N	N
109	Sumathi	71	F	168	92	134	192	122	N	Y	N	N
110	Joseph	52	M	174	92	134	174	118	Y	Y	N	N
111	Jothi	76	F	172	94	128	184	106	N	Y	N	N
112	Pandiyaraj	51	M	162	94	172	220	112	Y	Y	Y	N
113	Shayamala	78	F	132	80	124	198	124	N	N	N	N
114	Mahesh babu	57	M	164	92	126	186	108	Y	Y	N	N
115	Veeralakshmi	73	F	138	80	128	176	128	N	N	N	N
116	Sankari	80	F	188	100	164	230	124	N	Y	Y	N
117	Satheeskumar	61	M	202	110	112	222	128	N	Y	N	N
118	Kumarai	82	F	208	112	118	254	162	N	Y	N	Y
119	Saranya	75	F	168	94	126	194	110	N	Y	N	N
120	Kanniya	55	F	128	78	146	210	126	N	N	Y	N

ABBREVIATIONS

SBP - Systolic blood pressure

DBP - Diastolic blood pressure

FGL - Fasting glucose

TC - Total cholesterol

LDL - Low density lipoprotein

SHT - Systemic hypertension

DM - Diabetes mellitus

HPL - High plasma lipids

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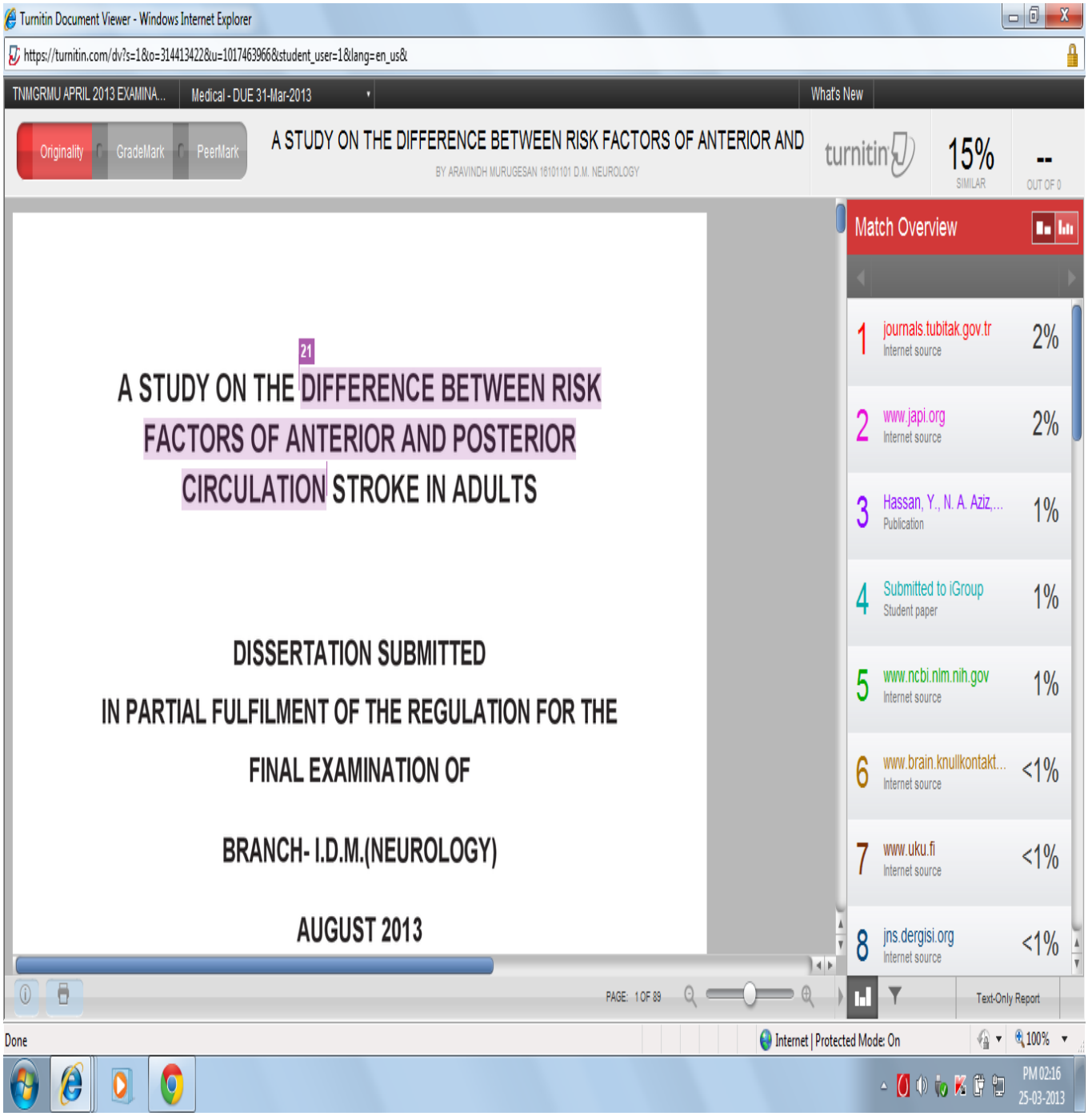
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Institutional Review Board / Independent Ethics Committee.
Dr. N. Mohan, M.S., F.I.C.S., F.A.I.S.,
Dean, Madurai Medical College & 2521021
Govt Rajaji Hospital, Madurai 625020.
Convenor

Sub: Establishment-Govt. Rajaji Hospital, Madurai-20-
Ethics committee-Meeting Agenda- approval -regarding.

The Ethics Committee meeting of the Govt. Rajaji Hospital, Madurai was held at 11.00 Am to 1.00 Pm on 28.01.2013 at the Surgery Seminar Hall, Govt. Rajaji Hospital, Madurai. The following members of the committee have attended the meeting.

1.Dr. V. Nagarajan, M.D., D.M (Neuro) Ph: 0452-2629629 . Cell.No 9843052029	Professor of Neurology (Retired) D.No.72, Vakkil New Street, Simmakkal, Madurai -1	Chairman
2. Dr.Mohan Prasad , M.S M.Ch Cell.No.9843050822 (Oncology)	Professor & H.O.D of Medical Oncology(Retired) D.No.72, West Avani Moola Street, Madurai -1	Member Secretary
3. Dr.L. Santhana Lakshmi,MD Cell.No 9842593412	Associate Professor of Physiology/V.P Madurai Medical College	Member
4. Dr. Parameswari M.D (Pharmacology) Cell.No.9994026056	Director of Pharmacology Madurai Medical College	Member
5. Dr.Moses K.Daniel MD(Gen.Medicine) Cell.No 09842156066	Professor & H.O.D of Medicine Madurai Medical College	Member
6. Dr.D. Soundara Rajan,MS(Gen.Surgery) Cell.No 9842120127	Professor & H.O.D of Surgery Madurai Medical College	Member
7. Dr.Angayarkanni MD(O&G) Cell.No 9443567724	Professor & H.O.D of O&G Madurai Medical College	Member
8. Dr.P.V. Pugalenthi M.S, (Ortho) Cell.No 9443725840	Professor & H.O.D Ortho Madurai Medical College	Member
9. Dr. M. Sundarajan M.S., Mch Cell.No 9994924369 (Neuro Surgery)	Professor (Neuro Surgery) Madurai Medical College	Member
10 Thiru..Pala. .Ramasamy , BA.,B.L., Cell.No 9842165127	Advocate, D.No.72.Palam Station Road, Sellur, Madurai -2	Member
11. Thiru. P.K.M. Chelliah ,B.A Cell.No 9894349599	Businessman, 21 Jawahar Street, Gandhi Nagar, Madurai-20.	Member

Following Projects were approved by the committee

Sl. No	Name of P.G.	Course	Name of the Project	Remarks
1.	Dr. K. Singaravel	PG in M.S Orthopaedics Madurai Medical College, Madurai.	A Study on outcome of open reduction and internal fixation of fractures lateral condyle of the humerus in children and adolescent.	Approved
2.	Dr. M. Aravindh.	PG in D. M (Neurology) Madurai Medical College, Madurai.	A Study on the difference between risk factors of anterior and posterior circulation stroke in adults.	Approved
3.	Dr.G.Arun	PG in M.Ch (Plastic Surgery), Madurai Medical College, Madurai.	" A predictable comparison of ideal skin cover for sole defects of various Etiology"	Approved
4.	Dr.R.R.Saravanan	PG in DM (Cardiology) Madurai Medical College, Madurai-20.	Correlation of Annular MPI ratio of Tissue Doppler Imaging(TDI) in acute Inferior wall Myocardial Infarction with coronary Angiogram for identifying infarct Related artery culprit	Approved
5.	Dr.R.Loretta Raj	PG in M.D (Anaesthesiology) Madurai Medical College, Madurai.	Comparative study of the outcome of results of Anaesthesia between ultrasound guided infraclavicular and supraclavicular brachial plexus blockade.	Approved
6.	Dr.T.Gayathri	PG in M.D (Anaesthesiology) Madurai Medical College, Madurai.	Comparison of bupivacaine & bupivacaine with verapamil in supraclavicular brachial plexus blockade using nerve stimulator.	Approved

Please note that the investigator should adhere the following: She/He should get a detailed informed consent from the patients/participants and maintain Confidentially.

1. She/He should carry out the work without detrimental to regular activities as well as without extra expenditure to the institution to Government.
2. She/He should inform the institution Ethical Committee in case of any change of study procedure site and investigation or guide.
3. She/He should not deviate for the area of the work for which applied for Ethical clearance.

She/He should inform the IEC immediately, in case of any adverse events pr Serious adverse reactions.

4. She/he should abide to the rules and regulations of the institution.
5. She/He should complete the work within the specific period and apply for if any Extension of time is required She should apply for permission again and do the work.
6. She/He should submit the summary of the work to the Ethical Committee on Completion of the work.
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8. She/He should understand that the members of IEC have the right to monitor the work with prior intimation.

Member Secretary **Chairman** **DEAN/Convenor,**
Govt. Rajaji Hospital,
Madurai-20.

To
The above PG students-thro' Head of the Departments concerned.

31.1.13

Master chart

Anterior circulation stroke

Sl.no	Name	Age	Sex	SBP	DBP	FGL	TC	LDL	Smoking	SHT	DM	HPL
1	Raja	70	M	150	100	150	250	140	Y	Y	Y	Y
2	Alagar	65	M	130	80	110	260	170	N	N	N	Y
3	Parvathi	62	F	190	100	120	200	120	N	Y	N	N
4	Pappa	65	F	130	86	110	254	136	N	N	N	Y
5	Sundar	64	M	128	74	150	230	120	Y	N	Y	N
6	Meenachi	70	F	192	96	112	264	140	N	Y	N	Y
7	Selvam	68	M	138	88	130	230	110	N	N	N	N
8	Murugesan	74	M	120	84	110	200	120	N	N	N	N
9	Ganapathi	54	M	200	100	162	202	128	N	Y	Y	N
10	Kumari	68	F	138	86	126	230	128	N	N	N	N
11	Lakshmi	62	F	126	80	110	200	120	N	N	N	N
12	Devi	69	F	110	80	156	178	100	N	N	Y	N
13	Mani	58	M	138	88	130	200	112	Y	N	N	N
14	Srinivasan	69	M	128	78	142	200	120	N	N	Y	N
15	Parvatam	53	F	210	110	116	198	110	N	Y	N	N
16	Mangalam	62	F	110	86	120	270	136	N	N	N	Y
17	Subbu	58	M	126	86	120	188	110	N	N	N	N
18	Manickam	74	M	132	88	158	200	112	N	N	Y	N
19	Sudha	58	F	164	96	120	188	128	N	Y	N	N
20	Murugan	68	M	120	88	156	200	120	Y	N	Y	N
21	Kumara	50	F	120	84	120	200	128	N	N	N	N
22	Kasi	68	M	124	88	148	168	100	N	N	Y	N
23	Ayeesa	80	F	170	98	134	178	102	N	Y	N	N
24	Jerina	67	F	192	100	128	204	128	N	Y	N	N
25	Manohar	58	M	134	86	120	174	112	Y	N	N	N
26	jasmin	68	F	110	80	110	168	100	N	N	N	N
27	Hari	64	M	120	82	120	264	142	N	N	N	Y
28	Rosalin	70	F	180	100	112	200	120	N	Y	N	N
29	Kathiga	62	F	184	96	162	200	122	N	Y	Y	N
30	Sundaresan	68	M	120	88	130	168	102	N	N	N	N
31	Pandi	50	M	130	98	110	168	110	N	N	N	N
32	Kandan	64	M	160	96	128	280	162	N	Y	N	Y
33	Anand	50	M	134	82	170	206	120	Y	N	Y	N
34	Lakshmi	48	F	110	86	120	166	124	N	N	N	N
35	Vishnu	64	M	156	102	128	250	148	Y	Y	N	Y
36	Ganesan	68	M	134	78	164	186	106	Y	N	Y	N
37	Joseph	69	M	128	84	128	200	120	Y	N	N	N
38	Begam	61	F	186	96	124	198	112	N	Y	N	N
39	Sangeeta	46	F	110	84	152	200	128	N	N	Y	N
40	Rani solai	54	F	110	84	112	204	102	N	N	N	N
41	Sankar	56	M	196	98	160	164	120	N	Y	Y	N
42	Tamilselvi	66	F	134	86	130	200	114	N	N	N	N

Sl.no	Name	Age	Sex	SBP	DBP	FGL	TC	LDL	Smoking	SHT	DM	HPL
43	Mangai	58	F	148	100	132	168	120	N	Y	N	N
44	Kannan	59	M	128	78	110	166	122	N	N	N	N
45	Kathigabegam	60	F	172	94	152	200	120	N	Y	Y	N
46	Kavitha	58	F	110	82	120	174	122	N	N	N	N
47	Suresh	56	M	128	78	134	204	126	N	N	N	N
48	Malliga	59	F	168	102	162	188	102	N	Y	Y	N
49	Subbu	61	F	172	98	124	190	110	N	Y	N	N
50	Subbulakshmi	63	F	120	88	134	200	120	N	N	N	N
51	Sathesh	54	M	136	82	162	176	102	N	N	Y	N
52	Vijaya	69	F	156	92	134	168	120	N	Y	N	N
53	Girija	55	F	110	80	136	264	152	N	N	N	Y
54	Mugesh	59	M	124	88	124	164	102	N	N	N	N
55	Mangalam	65	F	134	84	128	200	124	N	N	N	N
56	Karuppi	82	F	174	104	164	188	124	N	Y	Y	N
57	karuppan	51	M	110	86	124	200	110	Y	N	N	N
58	Valli	58	F	120	80	112	176	110	N	N	N	N
59	Kumar	56	M	168	110	134	186	100	N	Y	N	N
60	Vasanthi	56	F	112	82	126	184	128	N	N	N	N
61	Krishnan	69	M	102	78	118	200	124	N	N	N	N
62	Patturaja	70	M	192	112	132	204	112	N	Y	N	N
63	Alagu	69	M	134	78	148	234	128	N	N	Y	N
64	Rani	53	F	156	98	138	222	100	N	Y	N	N
65	Priya	68	F	124	76	128	212	112	N	N	N	N
66	Boja	60	M	168	92	118	200	128	N	Y	N	N
67	Jeyanthi	52	F	134	78	172	264	164	N	N	Y	Y
68	Suresh	51	M	158	98	112	220	114	Y	Y	N	N
69	Mariammal	67	F	164	98	164	224	126	N	Y	Y	N
70	Kaliyammal	69	F	168	94	122	226	124	N	Y	N	N
71	Saranya	50	F	114	80	126	228	114	N	N	N	N
72	Maheswaran	66	M	116	76	170	176	100	N	N	Y	N
73	Velammal	69	F	168	112	124	168	110	N	Y	N	N
74	Sekar	53	M	112	86	134	178	118	N	N	N	N
75	Puspa	80	F	136	88	168	164	112	N	N	Y	N
76	Saran	66	M	124	74	134	222	162	N	N	N	Y
77	Saraswathi	73	F	112	72	164	184	122	N	N	Y	N
78	Seeniyammal	76	F	150	100	136	186	128	N	Y	N	N
79	Manickam	55	M	138	82	118	178	126	N	N	N	N
80	Ambika	59	F	134	86	172	166	110	N	N	Y	N
81	Lakshmi	53	F	168	92	114	156	112	N	Y	N	N
82	Raman	67	M	120	88	124	158	116	Y	N	N	N
83	Nagu	61	F	128	84	116	200	118	N	N	N	N
84	Pallavi	73	F	172	100	154	194	120	N	Y	Y	N
85	puspam	67	F	134	76	112	196	122	N	N	N	N
86	Ilayaraja	67	M	124	74	100	200	124	N	N	N	N
87	Jeya	51	F	132	72	192	168	126	N	N	Y	N
88	Ponnuthai	59	F	154	112	100	188	128	N	Y	N	N
89	Muthu	60	M	112	78	138	176	126	N	N	N	N
90	Pethchi	66	F	124	88	172	268	150	N	N	Y	Y
91	Vani	58	F	168	98	124	168	122	N	Y	N	N

Sl.no	Name	Age	Sex	SBP	DBP	FGL	TC	LDL	Smoking	SHT	DM	HPL
92	shyam	67	M	102	80	112	178	112	N	N	N	N
93	Veeralakshmi	55	F	120	76	126	182	100	N	N	N	N
94	shayamala	63	F	118	82	170	164	128	N	N	Y	N
95	Iyyakannu	71	M	124	76	128	146	124	N	Y	N	N
96	Pothumponnu	71	F	178	110	134	168	116	N	Y	N	N
97	Rajan	59	M	134	74	148	200	114	N	N	Y	N
98	Sunder rajan	57	M	196	100	122	204	128	Y	Y	N	N
99	Gowri	47	F	132	76	124	182	124	N	N	N	N
100	Bhuvana	53	F	118	88	162	280	168	N	N	Y	Y
101	Muthukumar	61	M	200	100	126	206	100	N	Y	N	N
102	Bhavana	63	F	198	102	128	208	110	N	Y	N	N
103	sanmugam	47	M	114	72	138	176	112	Y	N	N	N
104	Karuupi	68	F	116	78	152	178	128	N	N	Y	N
105	Sujan	46	M	158	92	134	164	126	N	Y	N	N
106	Rathinakumari	49	F	138	76	136	158	124	N	N	N	N
107	Ranjani	51	F	168	102	128	176	114	N	Y	N	N
108	Ramamoorthy	82	M	134	82	110	200	112	Y	N	N	N
109	Krishnaveni	71	F	192	100	164	208	110	N	Y	Y	N
110	Eswari	61	F	124	84	138	258	150	N	N	N	Y
111	Velkumar	49	M	220	110	122	210	118	N	Y	N	N
112	Uma maheswari	50	F	126	88	134	206	116	N	N	N	N
113	Nemalan	48	M	128	80	128	182	124	N	N	N	N
114	Uma	64	F	134	72	126	168	126	N	N	N	N
115	Vanilla	73	F	168	110	170	176	124	N	Y	Y	N
116	Sivalingam	68	M	138	88	134	186	126	Y	N	N	N
117	Jaffer	47	M	114	72	128	148	128	N	N	N	N
118	Christi	49	F	168	100	124	200	110	N	Y	N	N
119	Vel	51	M	126	76	122	248	148	N	N	N	Y
120	Vinodh	47	M	128	74	136	222	124	N	N	N	N

Master chart

Posterior circulation stroke

Sl.no	Name	sex	Age	SBP	DBP	FGL	TC	LDL	Smoking	SHT	DM	HPL
1	Siva	65	M	150	96	128	200	110	Y	Y	N	N
2	Meenatchi	60	F	164	98	112	178	120	N	Y	N	N
3	Uma	62	F	132	80	154	180	112	N	N	Y	N
4	Mahesh	58	M	156	100	136	250	140	Y	Y	N	Y
5	Backium	70	F	138	88	134	186	122	N	N	N	N
6	Babu	64	M	158	102	156	188	122	N	Y	Y	N
7	Ponnuthai	68	F	128	80	128	190	128	N	N	N	N
8	Megala	56	F	200	110	126	168	124	N	Y	N	N
9	Karuppi	80	F	126	80	158	264	142	N	N	Y	Y
10	Anbu	61	M	146	100	124	192	100	Y	Y	N	N
11	Chinnaponnu	66	F	170	100	128	186	102	N	Y	N	N
12	Madhavi	67	F	124	82	146	178	128	N	N	Y	N
13	Manikandan	73	M	164	98	134	168	102	Y	Y	N	N
14	Chitra	68	F	180	96	132	268	154	N	Y	N	Y
15	Devi	63	F	164	94	164	168	114	N	Y	Y	N
16	Madesh	63	M	138	82	136	200	104	Y	N	N	N
17	Sakthi	69	F	162	92	126	204	120	N	Y	N	N
18	Maheswari	67	F	136	88	168	206	114	N	N	Y	N
19	Kathisbeevi	71	F	124	86	124	178	106	N	N	N	N
20	Sukumar	72	M	168	100	134	206	116	Y	Y	N	N
21	Chokkan	71	M	134	84	162	200	112	Y	N	Y	N
22	Valli	53	F	136	82	136	250	140	N	N	N	Y
23	Usha	57	F	172	110	168	208	118	N	Y	Y	N
24	Christi	63	F	112	78	134	206	120	N	N	N	N
25	Santhosh	64	M	134	88	146	168	144	Y	N	Y	Y
26	Veni	59	F	200	102	118	210	112	N	Y	N	N
27	Mangaleswari	57	F	138	84	116	201	108	N	N	N	N
28	Priyanka	55	F	136	82	112	222	124	N	N	N	N
29	Christopher	68	M	168	98	132	238	110	Y	Y	N	N
30	Nisha	53	F	134	80	112	236	124	N	N	N	N
31	Janni	69	F	166	94	164	226	126	N	Y	Y	N
32	James	59	M	156	96	128	268	150	Y	Y	N	Y
33	Mahalakshmi	71	F	176	96	124	238	112	N	Y	N	N
34	Manickam	61	M	128	78	126	224	128	Y	N	N	N
35	Arivu	63	M	186	98	134	224	114	Y	Y	N	N
36	Viji	65	F	126	76	128	220	124	N	N	N	N
37	Alagesan	71	M	164	100	136	264	146	Y	Y	N	Y
38	Papathi	63	F	186	94	128	178	112	N	Y	N	N
39	Vijyalakshmi	52	F	176	98	124	168	116	N	Y	N	N
40	Muthuraj	69	M	124	72	148	186	116	Y	N	Y	N
41	Sivakami	51	F	168	98	112	188	114	N	Y	N	N
42	Sakthidevi	72	F	172	98	118	254	168	N	Y	N	Y
43	Shenbagarajan	61	M	164	96	116	200	118	Y	Y	N	N
44	Vasuki	68	F	168	92	124	176	120	N	Y	N	N

Sl.no	Name	Age	Sex	SBP	DBP	FGL	TC	LDL	Smoking	SHT	DM	HPL
45	Meena	71	F	134	82	128	174	112	N	N	N	N
46	Elango	68	M	164	94	126	186	120	Y	Y	N	N
47	Kavitha	55	F	148	92	132	268	158	N	Y	N	Y
48	Thirumurugan	56	M	172	98	168	186	128	Y	Y	Y	N
49	Thangavel	57	M	174	98	132	188	126	Y	Y	N	N
50	Sundari	80	F	136	84	124	200	124	N	N	N	N
51	Shanmugam	53	M	132	82	126	210	124	Y	N	N	N
52	Alagi	79	F	130	80	146	220	128	N	N	Y	N
53	Nagammal	66	F	168	96	124	264	162	N	Y	N	Y
54	Riyaz	63	M	148	94	126	220	124	Y	Y	N	N
55	Elios	67	M	162	92	128	222	122	Y	Y	N	N
56	Kaleswari	78	F	128	82	148	178	112	N	N	Y	N
57	Alagammal	71	F	168	98	126	174	118	N	Y	N	N
58	Udhayan	63	M	164	94	124	264	152	Y	Y	N	Y
59	Xavior	64	M	124	80	128	176	126	Y	N	N	N
60	Tamilarasi	55	F	174	100	168	184	116	N	Y	Y	N
61	Parameswari	62	F	138	86	126	186	100	N	N	N	N
62	Senthil	56	M	126	82	128	182	104	Y	N	N	N
63	Saravanan	66	M	168	96	128	268	152	Y	Y	N	Y
64	Sangeeeta	51	F	134	84	166	192	128	N	N	Y	N
65	Rathinam	64	F	174	100	124	196	106	N	Y	N	N
66	Murugan	68	M	168	94	126	198	108	Y	Y	N	N
67	Andal	53	F	176	102	154	248	146	N	Y	Y	Y
68	Devaki	66	F	182	92	132	200	110	N	Y	N	N
69	Bala	69	M	168	96	138	168	112	Y	Y	N	N
70	Padmavathi	68	F	132	86	134	246	142	N	N	N	Y
71	Saroja	55	F	136	82	124	176	112	N	N	N	N
72	Salini	60	F	164	94	126	192	112	N	Y	N	N
73	Balasubramani	57	M	168	92	134	272	168	Y	Y	N	Y
74	Ramathilagam	52	F	164	96	128	198	128	N	Y	N	N
75	Sarojini	54	F	138	82	112	194	124	N	N	N	N
76	Subramani	55	M	176	98	172	280	162	Y	Y	Y	Y
77	Natchiar	57	F	186	100	134	188	114	N	Y	N	N
78	Riffai	61	M	182	104	112	196	110	Y	Y	N	N
79	Kannathal	56	F	176	102	116	268	154	N	Y	N	Y
80	Priya	58	F	134	84	118	168	116	N	N	N	N
81	Muthukumar	56	M	164	94	134	188	114	Y	Y	N	N
82	Alagami	59	F	168	92	124	250	140	N	Y	N	Y
83	Pallavi	60	F	164	96	128	176	118	N	Y	N	N
84	Suresh	57	M	172	98	134	256	148	N	Y	N	Y
85	Senthur	56	M	124	80	168	198	120	Y	N	Y	N
86	Chandrasekar	63	M	126	82	126	192	118	N	N	N	N
87	Chitradevi	61	F	174	94	134	256	152	N	Y	N	Y
88	Ayyadurai	72	M	184	100	136	200	114	Y	Y	N	N
89	Ammaponnu	62	F	182	104	128	210	120	N	Y	N	N
90	Chellathai	63	F	128	84	124	176	116	N	N	N	N
91	Pandi	71	M	164	98	154	220	112	Y	Y	Y	N
92	Kamalam	64	F	132	82	112	184	122	N	N	N	N
93	ayyammal	66	F	168	96	134	222	118	N	Y	N	N
94	Jerrina	68	F	130	86	112	196	114	N	N	N	N
95	Sankar	66	M	164	92	152	230	124	Y	Y	Y	N

Sl.no	Name	Age	Sex	SBP	DBP	FGL	TC	LDL	Smoking	SHT	DM	HPL
96	Saranyadevi	65	F	134	84	132	248	142	N	N	N	Y
97	Nagamalar	68	F	182	96	128	186	112	N	Y	N	N
98	Ganapathi	67	M	200	100	126	176	128	Y	Y	N	N
99	Nagakanni	70	F	146	92	134	194	118	N	Y	N	N
100	Anbuselvam	56	M	210	110	176	288	164	Y	Y	Y	Y
101	Malar	67	F	138	88	128	168	126	N	N	N	N
102	Karuppiah	55	M	136	80	124	176	100	Y	N	N	N
103	Kandan	72	M	128	78	126	196	128	N	N	N	N
104	Bapitha	72	F	168	92	126	258	142	N	Y	N	Y
105	Ghandimathi	69	F	134	82	128	200	102	N	N	N	N
106	Selvakumar	67	M	172	94	168	178	124	Y	Y	Y	N
107	Malarkodi	74	F	136	84	124	186	124	N	N	N	N
108	Chelian	53	M	134	86	128	210	104	Y	N	N	N
109	Sumathi	71	F	168	92	134	192	122	N	Y	N	N
110	Joseph	52	M	174	92	134	174	118	Y	Y	N	N
111	Jothi	76	F	172	94	128	184	106	N	Y	N	N
112	Pandiyaraj	51	M	162	94	172	220	112	Y	Y	Y	N
113	Shayamala	78	F	132	80	124	198	124	N	N	N	N
114	Mahesh babu	57	M	164	92	126	186	108	Y	Y	N	N
115	Veeralakshmi	73	F	138	80	128	176	128	N	N	N	N
116	Sankari	80	F	188	100	164	230	124	N	Y	Y	N
117	Satheeskumar	61	M	202	110	112	222	128	N	Y	N	N
118	Kumarai	82	F	208	112	118	254	162	N	Y	N	Y
119	Saranya	75	F	168	94	126	194	110	N	Y	N	N
120	Kanniya	55	F	128	78	146	210	126	N	N	Y	N

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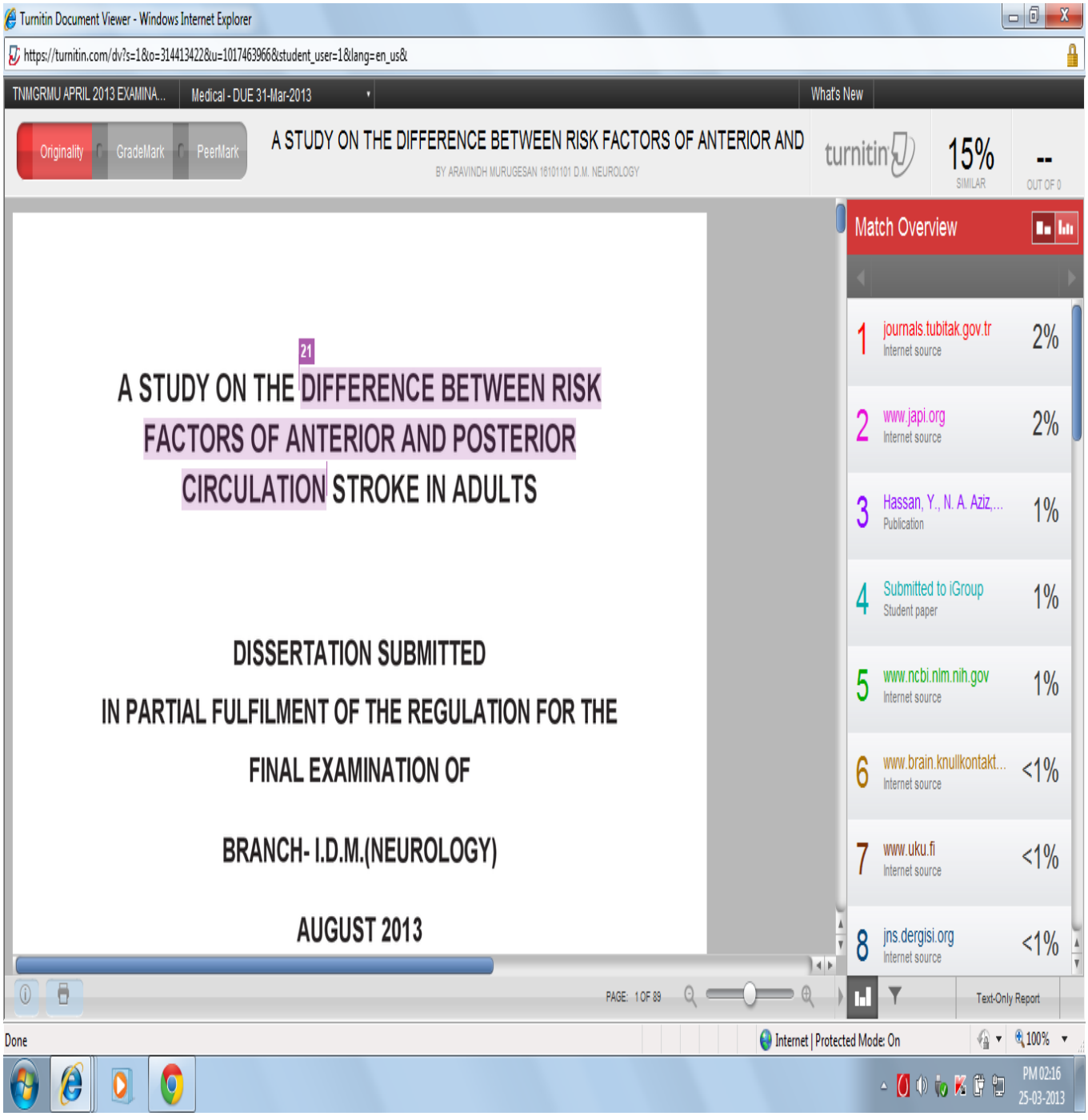
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